PACKAGE engineering

Shortcuts slash your downtime

Losing too much time cleaning up and changing over your machinery? Try shaking out product residue at runs' ends and give crew members "team" spirit as you upgrade and refine their work methods—Page 41

How high-density "poly" runs

Stiffness, friction coefficient, tensile strength, and softening range affect performance. Knowing this shows you how to run "HDPE" on overlap, fin-seal, horizontal tube forming, and form-fill-seal units—Page 50

Keep your heat within limits

Missing out on what heat control can do for you? This view of a thermal system should help you see how gradient, thermal lag, component placement, heat balance, and controllers add up to good control—Page 76

Complete contents—Page 2

MAY 1961

VOLUME 6 • NUMBER 5

A stack of reasons for bundling by Scandia

Famous Whitehall Laboratories Inc. bundles fraction-of-a-case packages—in either heat-sealing cellophane or economical glue-sealed kraft – on Scandia Automatic Bundling Machines.

- A coordinated program for bundling all *your* packages will result in hard-to-believe savings. If you are now setting up and loading containers by hand, bundling by Scandia will mean:

  You can save *up to 80% on materials costs alone*

  You will eliminate investment in large inventories of assorted display containers and shelf-packs

  Your costs of warehousing packaging materials will virtually disappear

- All Scandia Bundlers may be equipped with special attachments for:

  Flexographic printing on all six package sides

  Application of opening tapes

  Electric eye registration of pre-printed materials

  Code-marking

- Gentle, positive handling of your products at speeds *up to 600 packages per minute* is insured on Scandia patented, automatic, all-rotary-motion collators.

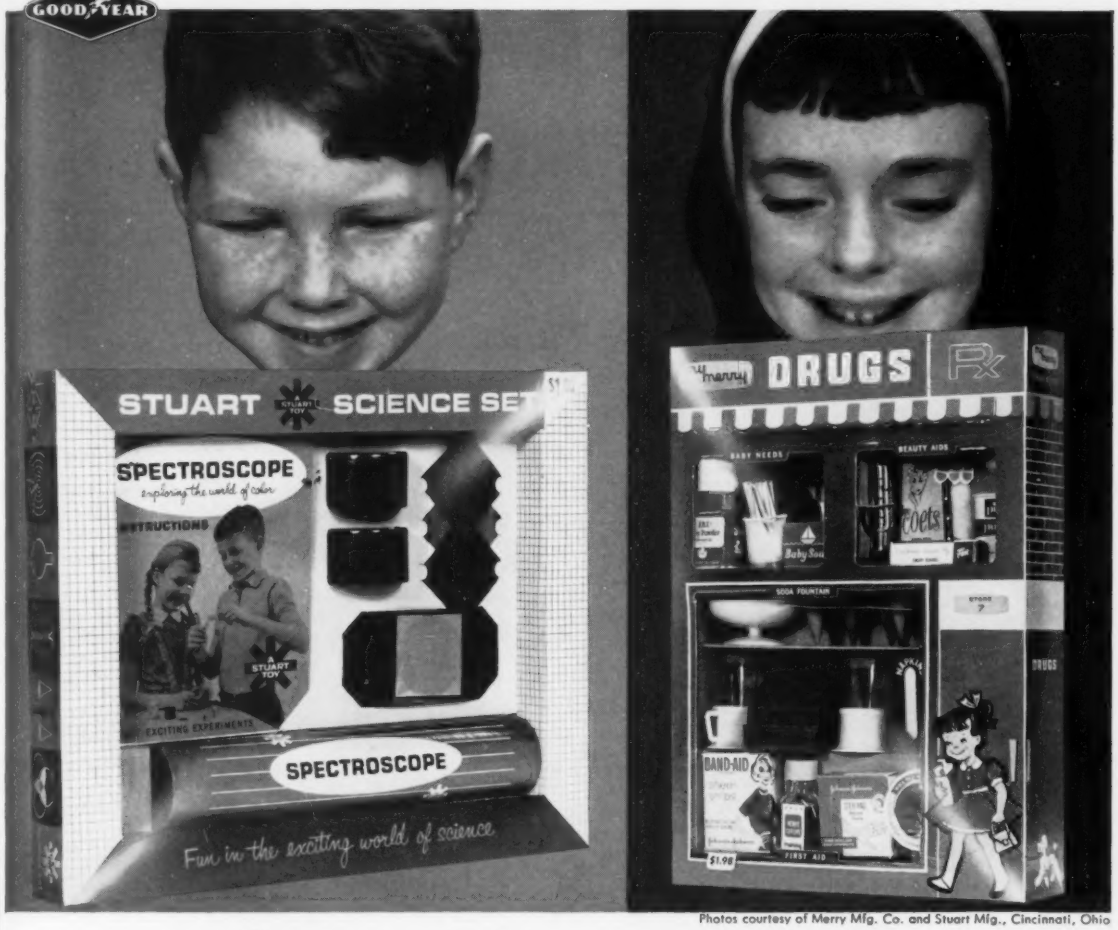
- Scandia's 40-year reputation for rugged, dependable machinery is built into every Scandia Bundler—seven models over a wide price range to fit your exact production needs.

Call or write today for a free analysis and test run of your "bundles" through Scandia's Experimental Packaging Program.

Scandia Packaging Machinery Company, North Arlington, New Jersey, WYman 1-8400.

SCANDIA
MEANS CRAFTSMANSHIP

For more information circle No. 201 on Reader Service Card



Photos courtesy of Merry Mfg. Co. and Stuart Mfg., Cincinnati, Ohio

So strong, so clear...so easy to seal

Tough, transparent VITAFILM is the inexpensive Goodyear film that glamorizes your package and protects it, too. It seals easily and positively over a wide temperature range. It's remarkably dust-resistant. Doesn't get brittle with age — takes plenty of rough handling.

Got a packaging problem? Goodyear technical service people will be glad to help you solve it with VITAFILM. Usually they can convert your packaging machinery at surprisingly little, sometimes no, cost to you. For the dollars-and-cents story on VITAFILM, write: Goodyear, Packaging Films Dept. E-6432 Akron, Ohio. Lots of good things come from Goodyear.

By GOODYEAR

Vitafilm, a Polyvinyl chloride—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

PACKAGE engineering

MAY 1961 • VOLUME 6 • NUMBER 5 • AN ANGUS J. RAY PUBLICATION

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Package Engineering is indexed in Engineering Index

Hayssen Machines Cut Frozen Food Packaging Costs

Whether you package your frozen products in overwrapped cartons or in sealed flexible bags, Hayssen has the answer to your cost and efficiency problems! Hayssen's complete line of flexible packaging equipment — overwrapping machines and bag making, filling, sealing machines — is sure to provide a model to fill your specific requirements.

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Hayssen machines produce saleable packages — the kind your salesmen want and need! Hayssen knows what makes a saleable package (we've been producing them since 1910) and we're at your service to develop the type of packaging that will do your product justice. Hayssen machines are busy right now in hundreds of companies packaging liquids, powders, granules, hard and soft goods in saleable packages. Why not see what Hayssen packaging machines can do for you. There is no charge or obligation for this service — just look in the Yellow Pages under Packaging Machinery! Your salesmen will be mighty glad you did!

Exclusively Manufacturers of Packaging Machines Since 1910

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A note from the Publisher

Our literature directory will be published in June

Next month PACKAGE ENGINEERING will come to you in two sections. The first section will be the regular June edition of PACKAGE ENGINEERING; the second section will be a separate directory of our advertisers' industry literature. Both sections will be in the same envelope, so be on the lookout for them.

This directory will contain pictures and thumbnail reviews of over 400 pieces of literature from just about every major supplier of packaging material and manufacturer of packaging machinery in the United States.

The literature has been grouped by subject, such as packaging materials, adhesives, shipping containers, packages, packaging machinery, etc. Packaging machinery has been broken down into subclassifications for ease in locating various types of machinery.

Under each heading will be listed current literature on that subject that has been published by a PACKAGE ENGINEERING advertiser.

It is quite possible that the day you receive this you may be looking for literature on a particular type of package or you may want literature published by different manufacturers about a certain type of packaging machinery. By referring to the sections that interest you and by using the bound-in business reply card, you can quickly and easily get the information you want.

On the other hand, your need for literature may not occur for several months after you receive the directory. Keep it handy so that when the need arises, you can get the literature you want when you want it. The listings in the directory will be current for at least six months, and we will handle reader service cards until December 1.

If you're interested in bringing your literature files up to date, this directory offers you a fine opportunity to do so.

We have spent a considerable amount of time and money in compiling and printing this directory, and we believe you'll find it a worthwhile addition to your library.

Angus J. Ray

Publisher

PACKAGE engineering®

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Package Engineering is published monthly by Angus J. Ray Publishing Co., 185 North Wabash Avenue, Chicago 1, Illinois. Angus J. Ray, president; R. B. Holmgren and I. F. Megargee, vice presidents; James G. Culbertson, secretary; and Ethyl K. Ray, treasurer. Please address articles for publication and correspondence regarding the editorial content to the editor. Statements and opinions expressed in articles are those of the respective authors for which Package Engineering assumes no responsibility.

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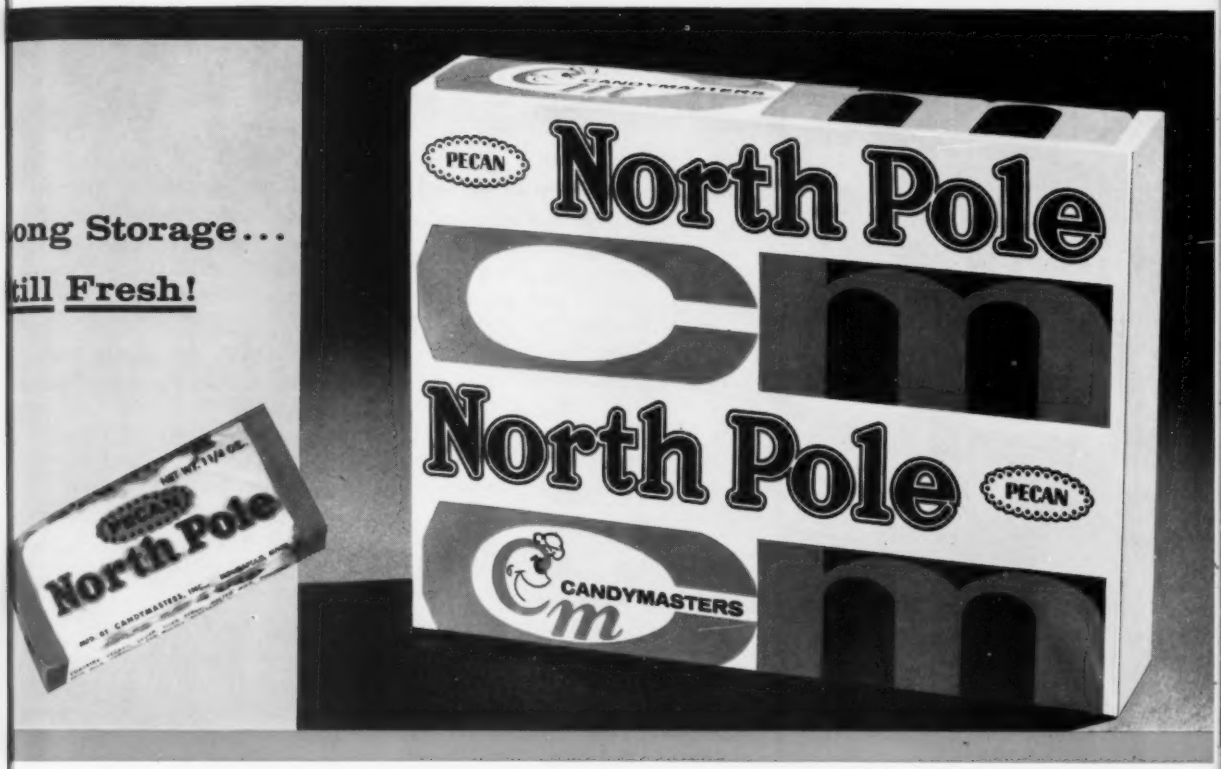

Problem

Pecan North Pole Candy Bars are a seasonal item. Sales are high during the summer, drop off during the fall and winter. At the end of a season, a wholesaler often has a stock to carry over until spring. During past winters, extreme temperature changes tended to dry out the cellophane wrapper which protected the 24-bar carton. The cellophane became brittle and cracked at the corners causing the candy to dry out and lose flavor. As a result, the manufacturer was forced to accept a substantial return of unsaleable merchandise.

Solution

Western-Waxide tested many overwrap materials. Regular waxed paper did not provide the desired long term storage. Heavier cellophane was too expensive. Then *Crown-Cote*® (with Strike-Thru Tissue) was tested. Candy, protected by *Crown-Cote*, was subjected to lengthy storage tests. These tests revealed no noticeable loss of freshness. This new protection has virtually eliminated returns of unsaleable candy. In addition, it has enabled the company to sell this perishable product in distant marketing areas.

Western-Waxide . . . turning problems to profit through research

CROWN ZELLERBACH

Western-Waxide Division

Headquarters, 2101 Williams Street, San Leandro, California
In Canada address product inquiries to Crown Zellerbach Limited, Vancouver, B.C.

For longer life and less down time specify Coes Knives on your new original equipment. These knives give you clean, true cuts that mean more production, finer quality and consistent performance.

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WORCESTER, MASS.

For your calendar

May 7-11. Institute of Food Technologists 21st Annual Meeting:
Hotel Statler Hilton, New York, N.Y. Contact: Col. C. S. Lawrence, executive secretary, Institute of Food Technologists, 176 W. Adams St., Chicago, Ill. *Telephone: ANdover 3-5492.*

May 15-16. American Institute of Electrical Engineers 1st Annual Packaging Industry Technical Conference:
The New Ocean House, Swampscott, Mass. Contact: Wallace Warren, registration chairman, R. J. Reynolds Tobacco Co., N. Main, Winston-Salem, N.C. *Telephone: PArk 5-7222.*

September 18-23. The University of Kansas 6th Annual Plant Layout and Facilities Planning Course:
Town House Hotel, Kansas City, Kan. Contact: E. S. Avison, assistant manager, The University of Kansas Extension Center, 39th and Rainbow Blvd., Kansas City 12, Kan. *Telephone: KEndall 2-1538 or 2-9387.*

October 1-4. Produce Packaging Association 11th Annual Convention and Exposition:
Chase–Park Plaza Hotel, St. Louis, Mo. Contact: Robert L. Carey, executive secretary, Produce Packaging Association, P.O. Box 29, Newark, Del. *Telephone: ENdicott 8-2906.*

October 10-12. Department of Defense (Director of Defense Research and Engineering) 30th Symposium on Shock, Vibration and Associated Environments:
Statler Hilton Hotel, Detroit, Mich. Contact: Code 4021, U.S. Naval Research Laboratory, Washington 25, D.C. *Telephone: JOhnson 3-6600, Ext. 2220.*

October 18-20. Packaging Institute 23rd Annual National Packing Forum:
Biltmore Hotel, New York, N.Y. Contact: Charles A. Feld, executive director, Packaging Institute, 342 Madison Ave., New York 17, N.Y. *Telephone: MUrray Hill 7-8875.*

November 7-10. Packaging Machinery Manufacturers Institute Show of 1961:
Cobo Hall, Detroit, Mich. Contact: W. L. Redding, Hanson & Shea, Inc., One Gateway Center, Pittsburgh 22, Pa. *Telephone: Atlantic 1-8552.*

November 8-9. PMMI Preventive Maintenance Conference-Workshop:
Cobo Hall, Detroit, Mich. Contact: Richard Wellbrock, New Jersey Machine Corp., 1600 Willow Ave., Hoboken, N.J. *Telephone: OLdfield 9-0483.*

November 13-14. Society of Packaging & Handling Engineers 1961 National Packaging and Materials Handling Competition, and 7th Annual Eastern Packaging and Handling Show:
Fifth Regiment Armory Hall, Baltimore, Md. Contact: C. Telfair Leinbach, Jr., 3120 St. Paul St., Baltimore 18, Md. *Telephone: HOpkins 7-6363.* *(End)*

STRONG, CLEAR DUPONT "MYLAR"* SOLVES THE TOUGH PACKAGING PROBLEMS

DEEP-FREEZE COLD

Stow it away in the coldest freezer, ship it under the roughest conditions—this sparkling vacuum pack of "Mylar"* polyester film and polyethylene stays strong. Leakers pose no problem for San Juan Fishing & Packing Co., Seattle.

SHARP EDGES

Jagged saw teeth can't puncture this new heavy-hardware package of "Mylar" and polyethylene bonded to cardboard. It's the only package that the Chicago Saws Co. could find to do this tough job . . . and still show the product.

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Heat-in bags of "Mylar" and polyethylene are getting wider distribution for Patio Foods, Inc., San Antonio. They've found bags of "Mylar" protect food flavor best, withstand broad temperature ranges from boiling to freezing.

*Du Pont's registered trademark for its polyester film.

Your Du Pont Authorized Converter has combinations of "Mylar" in roll stock or pouches. He can also provide more information. For his name write: E. I. du Pont de Nemours & Co. (Inc.), Film Dept. PE-5 Wilmington 98, Del.

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Better Things for Better Living ... through Chemistry

DU PONT MYLAR® POLYESTER FILM

For more information circle No. 206 on Reader Service Card

SEAGRAM
TAKES THE LEAD
in bottling efficiency

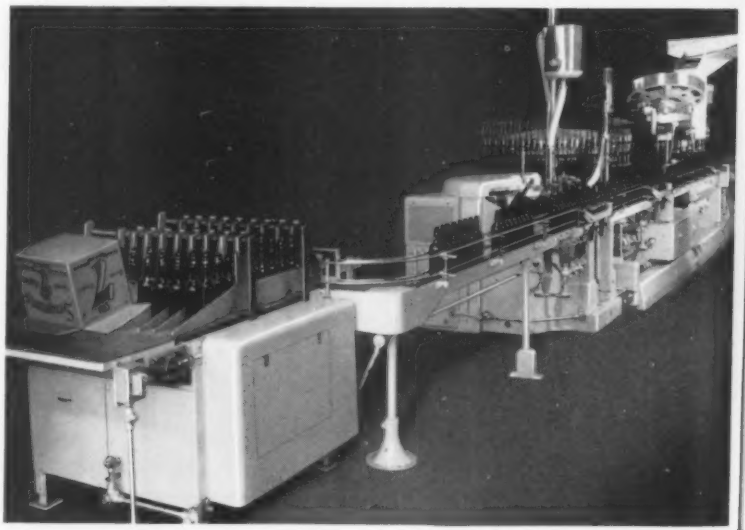
- First to use most advanced methods
- Speeds increase and costs go down

▶ Seagram, as everyone knows, is a "big demand" brand – one of the great names in whiskey in this country. Its annual volume leads in its industry. It naturally follows that its plant facilities must be kept up-to-the-minute to meet the demands of Seagram's national distribution and its exciting promotion and selling.

▶ Living up to its leadership-reputation, Seagram was the first to order and install, in its Lawrenceburg, Indiana plant, the most advanced equipment for high speed cleaning, filling and capping that Pneumatic – or any other machinery builder – has ever developed. Bottling operations on this equipment reach a peak of speed and efficiency never before matched in any automatic line. Cleaning and capping machines are fully synchronized to an amazingly flexible, speedy and smooth running filling unit. A rotary machine with 40 heads, it adjusts readily to any filling height while going full tilt – an outstanding and highly practical innovation in distillery production.

▶ For feeding, cleaning, filling and capping, Pneumatic's engineers have incorporated in their latest designs – represented in Seagram's synchronized line – versatility that has broken through many previous production barriers for good. You, too, may uncover truly surprising opportunities to effect definite savings with modern Pneumatic equipment.

Synchronized bottling line now installed at Lawrenceburg plant of Jos. E. Seagram & Sons, Inc.

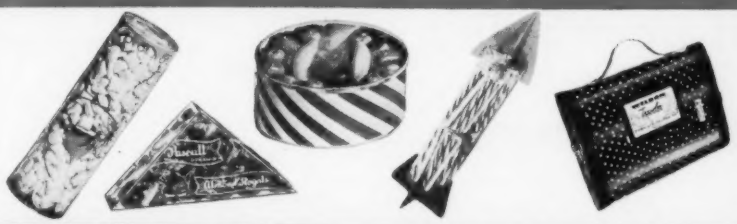


PNEUMATIC *Packaging and Bottling Equipment*

▶ PNEUMATIC SCALE CORPORATION, LTD., 77 Newport Avenue, Quincy 71, Mass. Sales Offices: *New York; Chicago; Dallas; Rochester.* Agents: *Fred Todt Company at Los Angeles, San Francisco and Seattle. Rockwell Pneumatic Scale Ltd., Edgware Road, London, N.W. 2, England; O.R.M.A., Paris 8, France; Carbert Manufacturing Co., Division, Cambridge, Mass.; Delamere & Williams Co., Ltd., Toronto.*

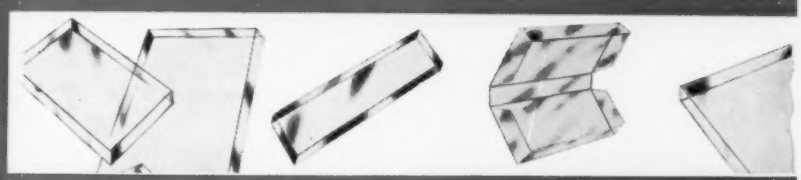
If you're looking for semi-rigid transparent packaging...

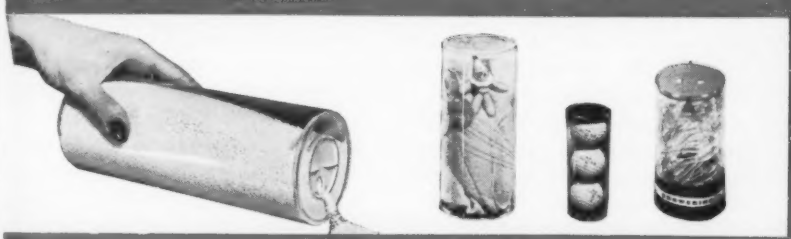
J-E HAS IT!



J-E's famous semi-rigid transparent plastic packages contain, protect and display products in more than 300 categories from gourmet foods to toiletries and ready-to-wear. Available in round, rectangular, oval, triangular, envelope and other shapes; multi-color printing on automatic equipment.

Transparent box tops, fold-up trays and one-piece self-cover acetate boxes, plain or printed, to keep your product sparkling clean and attractive. J-E's unique box top beaded edge is your guarantee of perfect fit, extra strength.





Crystaline* container—"the transparent can"—sift-proof with locked-in rigid molded plastic base, friction fitted without cement or heat seal. Available with removable top disc, or permanent pouring fitment. Ideal for powdered, granulated, other hard-to-contain products.

*Reg. U.S. Pat. Off.

Plastic packaging for fresh and frozen foods. FDA Approved. Available in round, rectangular, square and other shapes, transparent or colored opaque specially formulated styrene. J-E's food containers can be filled at higher than boiling temperatures, immediately quick frozen at —60° F. Snap-on, snap-in lids, or heat sealed.

Plastic lids to fit any conventional food container—pulp, paperboard or molded plastic. FDA Approved. Plain or printed in one, two or three colors, J-E supplies snap-on and snap-in lids for 8, 10, 12 and 16 ounce containers. J-E know-how assures perfect fit; J-E automatic equipment means prompt delivery.

Put J-E's Design Center and unmatched production facilities to work for you. Just send us your product—we'll prove our point by returning it in a smart, serviceable and economical J-E container.

J-E PLASTICS MANUFACTURING CORP.

400 NEPPERHAN AVENUE • YONKERS, NEW YORK

THE NATION'S LARGEST DESIGNER-PRODUCER OF SEMI-RIGID TRANSPARENT PACKAGING

The PULSE of packaging

Groups in the news:

PACKAGING INSTITUTE says May 15 is the deadline for nominations for its annual corporate and professional awards. Nominees need not be PI members. Further details are available from the PI offices at 342 Madison Ave., New York 17, N.Y.

SOCIETY OF PACKAGING & HANDLING ENGINEERS will hold a packaging seminar covering innovations in packaging materials and methods. It will be at the same time as the 1961 National Packaging and Handling Competition in November in conjunction with the 7th annual Eastern Packaging and Handling Show. J. L. Krager, Jr., Radio Corp. of America, Camden, N.J., is chairman of SPHE's national competition committee.

NATIONAL SAFE TRANSIT COMMITTEE, INC. *is now developing a technical consultation and verification service to provide "technical reinforcement" for its preshipment testing program. The group is retaining Container Laboratories Inc. to visit each NSTC certified testing facility to make sure it is using proper equipment and methods—and to advise on equipment calibration and test usage.*

PRESSURE SENSITIVE TAPE COUNCIL is now making available on a cost basis the equipment necessary to test pressure-sensitive tapes. It also has its 15 test methods currently available. Contact: Pressure Sensitive Tape Council, 1201 Waukegan Rd., Glenview, Ill.

Trends to watch:

Technical developments and favorable economics explain the new interest that package users and suppliers alike are showing in hot-melt adhesives. We understand that major can producers hope to improve hot melts to adapt them to cans for thermally processed foods. In this connection, the increasing use of nonmetal components on cans offers new possibilities for hot melts as end-seam sealing materials.

Similarly, adhesive suppliers, who lost business because of the switch in detergent packaging from metal to plastics, are eagerly seeking new applications for hot melts. Large volume production and accompanying lower prices are encouraging users who previously did not use hot melts to take another look at them.

New kind of squeeze on the traditional milk bottle: West Coast dairies are now using the new half-gallon THATCHER GLASS MANUFACTURING CO. INC. bottle with indentations along two sides for easy gripping and pouring.

Even though reports from cellophane producers indicate their material is holding its own and is not being crowded out by the newer films, we understand that at least one major cellophane maker is intensifying its interest in laminations. Researchers hint that we may expect new developments along these lines (i.e., combining cellophane with other materials) and even more tailoring of functional properties than in the past.

Packaging of motor oil shows up in the news: ANACONDA ALUMINUM CO. *and* SUN OIL CO. *report the successful testing of a one-quart foil-lined spiral-wound can with an interior folded lap seam making it suitable for liquids. Meanwhile,* AMERICAN CAN CO. *predicts substantial usage of lightweight tinplate cans for motor oil —as well as beer—in 1961.*

Packaging across the seas:

Packaging researchers in Japan are broadening their activities on several fronts. Some have been studying the "counting and estimating" of the costs of packaging. Others are intensifying their attention to mechanization and materials. Still other Japanese activities indicate growing interest in metallized films and folding cartons laminated with these films.

Irish packagers are finding that expanded plastic foam packages withstand shipment to the United States. WHISKEY DISTILLERS OF IRELAND recently shipped sets of four Irish coffee glasses in foam blocks to American consignees—with each glass riding in a recess and held in place by end plugs and pressure-sensitive tape.

H. B. FULLER CO. *now has a Latin American subsidiary—*FULLER-ULIVI BIANCHI S. A., *Buenos Aires. Fuller jointly owns this company with* ULIVI BIANCHI & CIA. S.A., *manufacturer of resins and plasticizers.*

MINNESOTA MINING & MANUFACTURING CO. reports a manufacturing subsidiary in Colombia with production facilities in Bogota'. Its plant there will make pressure-sensitive tapes, adhesives, coatings, and sealers among other 3M products.

For those interested in shipping across the seas, INSURANCE CO. OF NORTH AMERICA now has available the sixth edition of its "Ports of the World" report covering port facilities, labor, and handling details, as well as information on loss and damage prevention. Copies

are available from the company's public relations department, 1600 Arch St., Philadelphia 1, Pa.

More expansion for packaging:

CONTAINER CORP. OF AMERICA'S MENGEL DIV. *will soon begin production of expanded polystyrene for inner packing.*

A consulting firm, CONVERTORS' MACHINERY AND CONTROLS, INC., has been formed in Butler, Wis.

In its program to provide a complete line of equipment to the bottling industry, CROWN CORK & SEAL CO., INC. has purchased RADIO CORP. OF AMERICA's electronic beverage inspection equipment business.

MINNESOTA MINING AND MANUFACTURING CO. *is building a 54,000-sq.-ft. branch sales office and warehouse in Needham, Mass.*

GEORGE J. MEYER MANUFACTURING CO. has purchased MACHINERY SERVICE, INC. and will operate it as a division. Another Meyer division, Economic Machinery Co., which has been Machinery Service's sales agent for the past three years, will supervise its operations. George A. Craig, founder of Machinery Service, will remain as vice president-engineering.

As part of its decentralization of field marketing and manufacturing, THE KORDITE CO. has formed a national packaging sales division with offices in New York, Chicago, and San Francisco.

BEMIS BRO. BAG CO. *will build a 200,000-sq.-ft. plant to manufacture paper, textile, and open-mesh bags at Houston, Tex. Completion is scheduled for late fall and production by the end of 1961.*

OWENS-ILLINOIS GLASS CO. will build a 160,000-sq.-ft. plant to manufacture blown plastic bottles in Jersey City, N.J.

ALTIMIL CORP. has purchased the wire bound box and crate manufacturing assets of INDIANAPOLIS WIRE BOUND BOX CO.

ATLAS GENERAL INDUSTRIES, INC. *(formerly Atlas Plywood Corp.) has acquired* KILKLOK CORP. *and will operate it as an automated packaging division.*

Michigan State University Packaging Society
invites you to its
Third Annual Packaging Exposition
from noon to 6 p.m., Friday, May 12
from 9 a.m. to 5 p.m. Saturday, May 13
at the Packaging Laboratory (Building A-2)
on MSU's South Campus, East Lansing
See displays of graduate and undergraduate research
Take a look at packaging education
Meet the packaging students and see
what they are accomplishing
See what they are learning
about packaging materials and techniques

What people are doing:

Arthur Colton Co. has opened a West Coast branch in Beverly Hills, Calif. W. A. (WALLY) DOEPEL, who has been associated with Colton in Detroit for nine years, will manage the branch.

RUDOLPH J. DREWS is now administrative vice president of Foremost Dairies, Inc. Formerly he was vice president-administration and a director of Rexall Drug and Chemical Co.

Following the resignation of HAROLD L. BARTELT, WILLIAM T. BOSTON *has been elected president of Bartelt Engineering Co., Inc. Mr. Boston was formerly vice president.*

J. EDWIN PORTER is now Pittsburgh district manager for the commercial container division of Ball Brothers Co.

ALFRED F. MOOTY has joined the agricultural packaging division of Container Corp. of America. He will assist in the technical development of corrugated containers for banana shipments.

JOHN L. GUSHMAN, *formerly vice president of Owens-Illinois Glass Co. and president of Owens-Illinois International, was elected president, chief operating officer, and a director of Anchor Hocking Glass Corp.* WILLIAM V. FISHER, *president for the past 17 years, was named chairman of the board and chief executive officer of the corporation.*

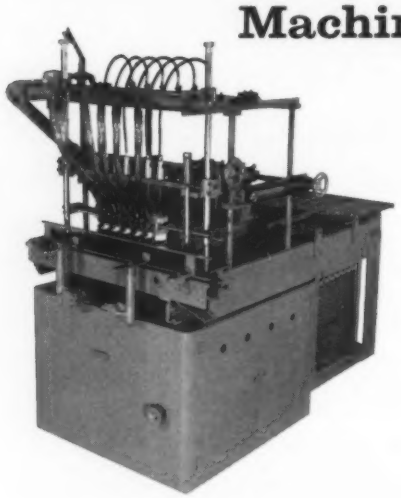
T. J. DERMOTT DUMPHY is now president of Custom Made Paper Bag Co., Inc. Previously he was manager of marketing services for Westinghouse Electric Corp.

The Rap-In-Wax Co. has appointed two new superintendents: WILLIAM NELSON, technical superintendent for printing; and RODGER HEFTY, Minneapolis plant technical superintendent. Also at Rap-In-Wax, WALTER R. FREEMAN, former manager of the food packaging division, will open a sales office for the company in Denver.

Crompton & Knowles Packaging Corp. has appointed WILLIAM F. DENT *regional sales manager. Mr. Dent, who will be located at the Bellwood, Ill. plant, will be responsible for the national sales of the Redington and Wrap-King Divisions in the central, south central, and western district territories.*

(Turn page)

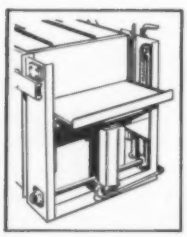
Unscramble AND Clean in a Single Operation with a Machinery Service Feeder-Cleaner



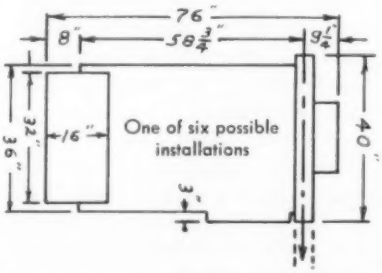
√ Saves time and money by combining steps
√ Versatile—handles glass, tin or aerosol containers
√ Saves labor—one attendant controls both operations
√ Dependable and inexpensive to buy and maintain
√ Quick easy changeovers—makes short runs ideal

700 UNITS NOW OPERATING

Wineries	Pharmaceuticals	Foods
Distilleries	Household Products	Cosmetics



Air-operated platform for elevating stacked cases



The MS Feeder-Cleaner efficiently handles a wide range of conventional or odd shaped containers . . . completely automatic after containers placed on dump table (tilt or stationary) . . . simplicity of design means fewer moving parts and prevents jamming and breaking . . . variable speed control for synchronization . . . combination air blast and vacuum exhaust loosens and removes foreign particles, necessary even for new containers . . . manifold or adjustable head type . . . mechanically operated Positioning Bar releases containers onto conveyor smoothly and regularly . . . Write for new bulletin.

Economic Machinery Company

60 FREMONT ST., WORCESTER 3, MASS.

Division of Geo. J. Meyer Manufacturing Co.

National Starch and Chemical Corp. has named JOSEPH D. RUSSO supervisor of its technical development laboratory at San Francisco.

SAM H. POPOVICH is now technical director of Westfield River Paper Co. Previously he was with W. F. and H. Jordan Manufacturing Co.

*Three Milprint, Inc. promotions —*RAY SCHMITZ *is now regional sales manager of the West Coast;* JAMES MCFAUL *replaces Mr. Schmitz as district sales manager, San Francisco;* RICHARD GRESHAM, *a Milprint salesman for 13 years, is district manager of direct sales, Southern California.*

The Dobeckmun Co. has promoted ROBERT W. KOMA to Philadelphia district manager for industrial sales. Mr. Koma was a Dobeckmun sales representative for seven years.

TIMOTHY W. J. COSTELLO is now Thatcher Glass Manufacturing Co., Inc.'s branch manager in San Francisco.

EDWARD F. BEYER, JR. *is now vice president of W. R. Grace & Co.'s Overseas Chemical Div.—a newly created position.*

R. WILLIAM VERGOBBI replaces STANLEY R. HOWARD, who is retiring, as chief engineer of Pneumatic Scale Corp., Ltd. Mr. Vergobbi has been associated with Pneumatic's engineering department since 1925.

St. Regis Paper Co. has appointed HOWARD E. BURCH general manager of its F. J. Kress Container Div. at Newark, Ohio. Mr. Burch, who has been with the Kress organization since 1937, will continue as sales manager at Newark.

EUGENE TAUBEL *has joined Claremont Pigment Dispersion Corp.'s technical sales staff serving New York and Connecticut.*

ROBERT G. NICHOLS has joined Plastic Packaging Co. as new product manager.

Richardson Scale Co. has elected WALKER M. YOUNG a vice president. Mr. Young will continue to direct the marketing activities of the company. *(End)*

In Packaging...

THE RIGHT ADHESIVE IS LIKE THE RIGHT PRODUCTION MANAGER

Maybe you can't compare apples and oranges, and most likely no one wants to be compared with an adhesive. But the *right* production man and the *right* adhesive can have an important effect on profits.

The right production manager not only cracks the whip, he applies an intimate knowledge of his men and machines to a production process calculated to turn out a quality product . . . at maximum profit.

Similarly, to contribute to *profitable* production, the right adhesive must do more than just adhere.

Swift's hundreds of resin adhesives for packaging are specifically formulated to offer the user *selectivity* in speed, machine-ability and tack characteristics. They are high in strength, strong in tack, long in machine-ability—and many are versatile too.

Don't overlook the profit *opportunity* in properly specified, properly used packaging adhesives. *Swift* is the informed source for prompt, courteous, and *authoritative* service. 24 strategically located Swift adhesives plants produce a complete line of packaging adhesives for the most specific applications. Call your nearby Swift Adhesives Specialist, or write for further information. Swift & Company, Adhesive Products Department, Chicago 9, Illinois.

To Serve Your Industry Better

WITH THESE ADHESIVE PRODUCTS

RESINS AND RUBBERS IN EMULSION OR SOLVENT;
DRY, LIQUID AND FLEXIBLE ANIMAL GLUES
LIQUID DEXTRIN ADHESIVES

A-59

PLASTIC PACKAGING IDEAS THAT MAY GIVE YOU AN IDEA

New polyethylene film has all the clarity you want

You no longer have to stock several types of polyethylene film because new DYLAN® polyethylene 2037 gives you the best combination of properties available in *any* low-density packaging film. In *one* versatile material, you get excellent transparency, unusual high gloss, and good strength. New DYLAN film has excellent draw-down so it's easy to extrude. It heat seals easily, prints clearly. Look into this newly developed DYLAN polyethylene 2037 film; it protects, shows off, and sells any food, textile, paper, industrial, novelty or toy product.

For more information circle No. 211 on Reader Service Card

Foam trays simplify toy packaging

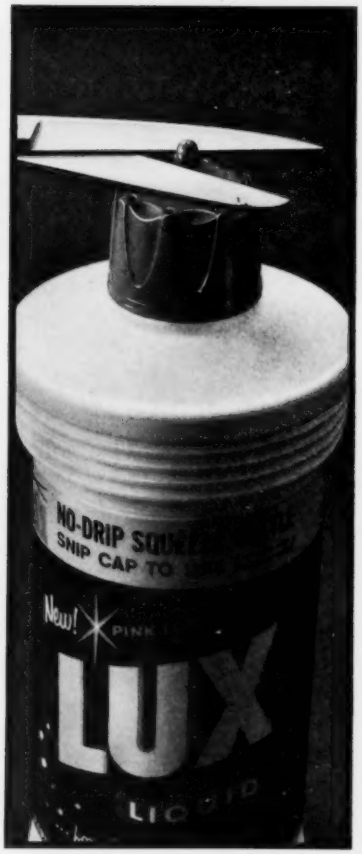
A. C. Gilbert Company uses DYLITE® expandable polystyrene trays because they completely eliminate costly interior packing materials. DYLITE trays are strong, good looking, easy to assemble and load—they save on labor costs. They also cut shipping costs because they're extremely lightweight.

DYLITE packages come in any size or shape; they fit firmly around the product and protect it from shipping damage. They make an attractive display because their smooth, colorful surface won't smear, chip or flake. DYLITE parts molded by: Sullifoam Products, Willow Grove, Pennsylvania.

Plastic changes the face of compacts

If you've been to a cosmetic counter recently, you've probably noticed a new look in compacts. Many cosmetic manufacturers have switched to plastic cosmetic cases because they cost less and make a better-looking package.

One plastic that has helped revolutionize the compact field is DYLENE® polystyrene. It's a designer's plastic; you can choose from over 15 formulations with balanced properties. DYLENE molds easily in a wide range of colors in a smooth, glossy finish. It is lightweight and has good heat and shock resistance. These compacts were molded by Augusta Plastics, Bronx, New York.



New cap has a "snip-off" tip

This convenient feature has captured the fancy of time-saving housewives. They just scissor the top of this new DYLAN® polyethylene cap and get a measured flow of Liquid Lux with every squeeze of the bottle. There's no more burdensome measuring by capsful. This new cap tightly grips the neck of the bottle . . . no drips, no leaks.

DYLAN caps have a smooth, glossy finish that won't chip or dent. They're lightweight, rust-proof and they can be molded in any size, shape or color. Molded by: Augusta Plastics, Bronx, N. Y., Formold Plastics, Blue Island, Ill., Gibson Associates, Inc., Cranford, N.J.

KOPPERS PLASTICS

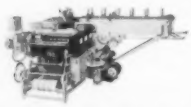
Find out how Koppers family of plastics can better your package at less cost. For complete information, write Koppers Company, Inc., Plastics Division, Dept. 1519, Pittsburgh 19, Pa.

KOPPERS

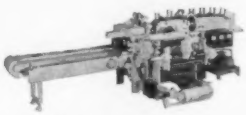
9 WRAPPING MACHINES

ONE OF THESE

Battle Creek model 475's will soft film overwrap your thin, rectangular or irregularly shaped products at high speed



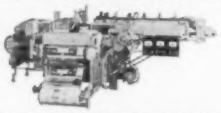
Model for 475 General Rectangular Applications



Model 475-H for Soft Irregular Products

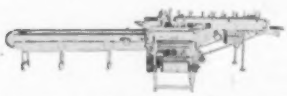
Model 475-SN for Square Soft Items

Model 475-S for Thin or Thick Items



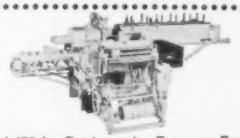
Model 475-TS for Soft Rounded Shapes

Model 475-TT for Irregular Products



Model 475-N for Paper Napkin Overwrapping

Model 475-T for Textile Products



Model 475 for Rectangular Trays or Cartons

products like these can be beautifully packaged at speeds up to 75 per minute

These newly developed machines have been thoroughly field tested in more than 100 installations. All machines create attractive, weld-sealed packages in polyethylene and most of the currently available plastic films besides being adaptable to films of the future. Our engineering service will help you choose from nine different Model 475's the machine best suited to your particular packaging needs. Send your inquiry in today.

Continuous Flow PACKAGING

BATTLE CREEK *packaging machines, inc.*, BATTLE CREEK, MICH

PMMI

BEMA

EXCO is the registered trademark of Exco Products Company. ALCOA is the registered trademark of Aluminum Company of America. The Corporate name and combination mark, EXCO-ALCOA, is used under license to the manufacturer by each of these companies.

For more information cirlce No. 212 on Reader Service Card

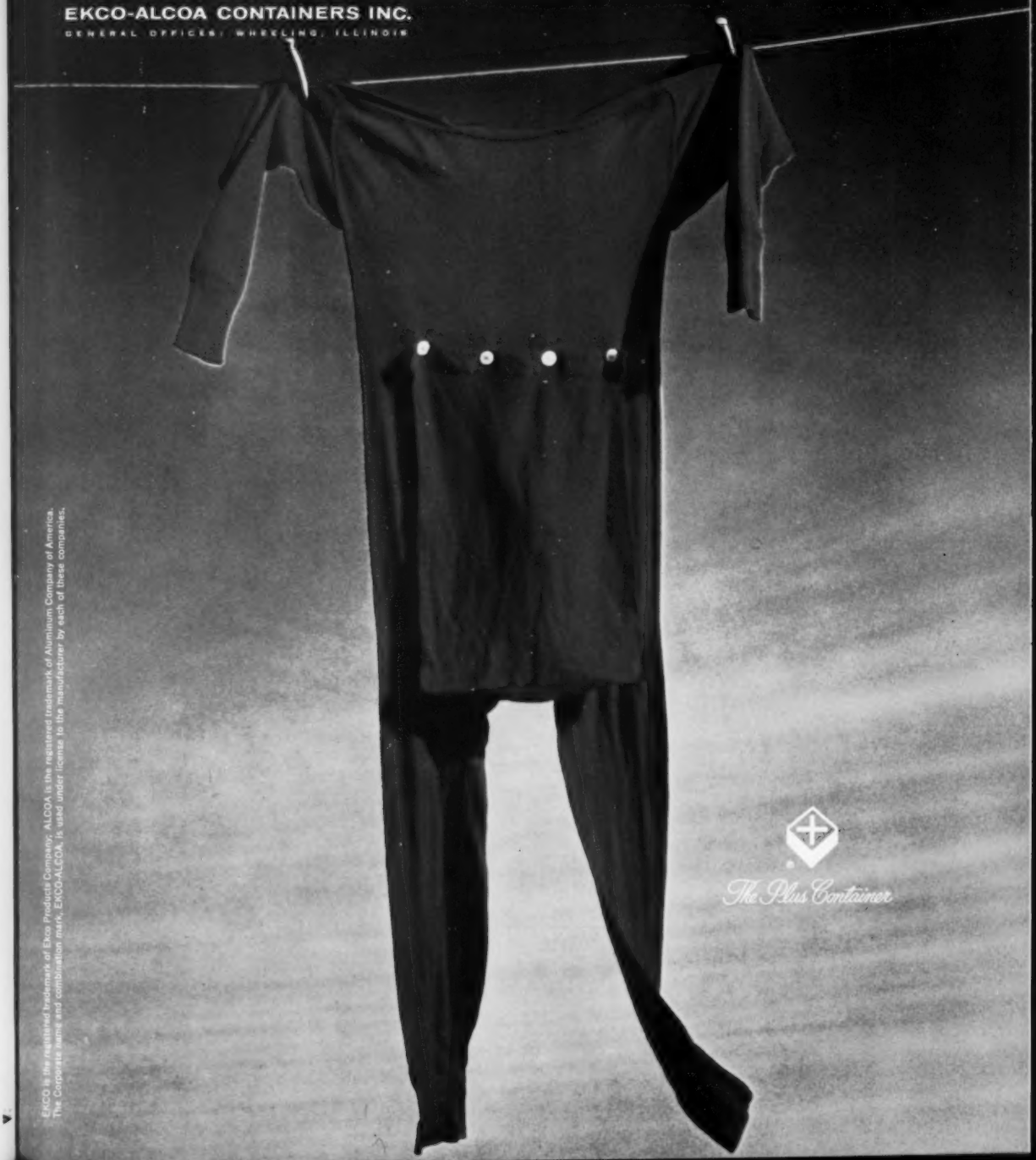
Circle No. 213 on Card ▶

Ekco-Alcoa buttons up the package.

When you buy rigid foil containers, you want a particular size, shape, gauge, and color. We can provide it. Need package design help? We are staffed to serve you. But even the best foil container is incomplete without fast, efficient closure equipment on your line. Fully-automatic, semi-automatic, or sized for market testing . . . for use with board-cover, transparent plastic, heat-shrink film, or hermetic seal . . . Ekco-Alcoa has closure machines available on either a sale or rental basis to fit your exact packaging and production requirements. Plus qualified engineers to train your personnel — and install and service each piece of equipment. Providing the complete foil package — from basic container to final closure — is Ekco-Alcoa's specialty. See your nearby Ekco-Alcoa distributor for further information. And write to our Packaging Equipment Division for material on the advantages and performance features of our closure machines.

EKCO-ALCOA CONTAINERS INC.

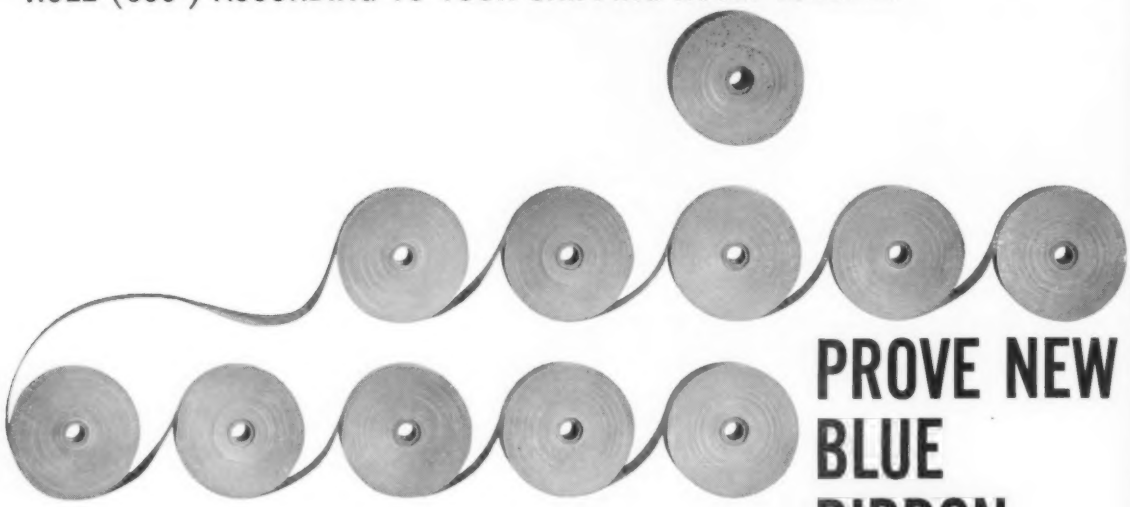
GENERAL OFFICES: WHEELING, ILLINOIS



The Plus Container

EKCO is the registered trademark of Ekco Products Company; ALCOA is the registered trademark of Aluminum Company of America. The Corporate name and combination mark, EKCO-ALCOA, is used under license to the manufacturer by each of these companies.

BLUE RIBBON WITH HIGH SPEED RENACEL-100 ADHESIVE WETS OUT FASTER, TACKS QUICKER, BONDS MORE PERMANENTLY TO CARTONS THAN ANY OTHER SUPER STANDARD TAPE EVER MADE. IT IS ODORLESS AND COLDPROOF TOO. IN YOUR PACKAGING OPERATION BLUE RIBBON CAN MEAN LOWER LABOR COSTS, INCREASED PRODUCTION, GREATER SAFETY IN TRANSIT. **BUT CLAIMS ARE NOT PROOF!** ■ HUDSON OFFERS YOU THE OPPORTUNITY TO EVALUATE BLUE RIBBON PERFORMANCE BY TESTING 6000 FEET OF TAPE OR ONE FULL ROLL (600') ACCORDING TO YOUR SHIPPING ROOM VOLUME.



PROVE NEW BLUE RIBBON

OUTPERFORMS ALL SUPER TAPES

TEST FREE 600 TO 6000

FEET ON YOUR PRODUCTION LINE

Hudson Pulp & Paper Corp. BR-P-5
477 Madison Avenue, New York 22, N. Y.

Gentlemen:
We would like to test Blue Ribbon super standard tape with new RENACEL-100 adhesive. Based on the information below supply FREE test quantity at once.

Products Packaged _____

Carton Sizes _____

Average Monthly Carton Shipments _____

Brand of Present Tape Used _____

Your Name _____ Title _____

Company _____

Address _____ City _____ State _____

BLUE RIBBON SUPER STANDARD WITH NEW RENACEL-100 ADHESIVE is a product of HUDSON PULP & PAPER CORP. . . . for over 30 years the leader in quality branded gummed sealing tape.

PROVE NEW BLUE RIBBON PERFORMANCE IS BETTER THAN THE CLAIM. WRITE FOR YOUR TEST PROGRAM SUPPLY.

HUDSON
PULP & PAPER CORP.

For more information circle No. 214 on Reader Service Card

AT LAST!

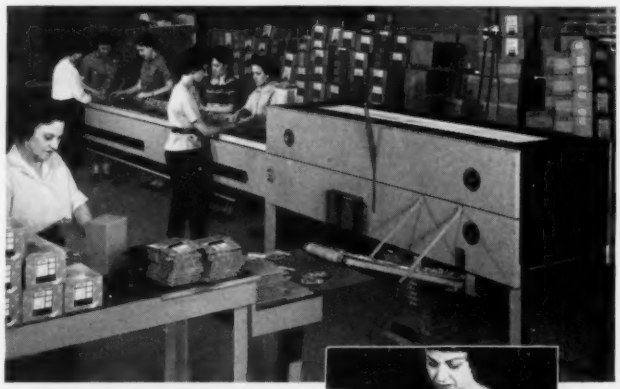
BLIST-O-MATIC T.M.

Automatic BLISTER PACKAGING-SEALING

YES...THE PRACTICAL AUTOMATIC MACHINE for Blister Packaging is here at last . . . developed by engineers who have been intimately associated with production and use of back-up cards for Blister Packaging . . . and who *know* the problems and needs in this field.

Relatively simple but rugged construction . . . smooth *continuous motion* operation . . . readily accessible parts throughout . . . ease of change-over of Blisters and Cards . . . much faster production with no increase in labor . . . these are built into BLIST-O-MATIC. Check these basic features of the machine:

1. Smooth CONTINUOUS MOTION operation . . . no stop-and-go stuttering
2. Fully automatic Card feeding
3. Standard model handles Cards from 2½" x 3½" to 8½" x 11"
4. Handles Blisters up to maximum depths
5. Will handle full line of sizes . . . with changeover time of only ½ hour or less
6. Simplicity of construction means easy maintenance . . . with your own plant people
7. Produces finished Blister Packages at 3000 to 8000 or more per hour . . . *or as fast as Blisters can be loaded with merchandise* (automatic loading is possible with many products)
8. Automatically ejects finished packages
9. Gives accurate Blister-Card registration, and positive, sure seal of Blister to Card
10. Conveyor length at your discretion . . . plenty of room for any number of product loaders



Any number of loading stations may be provided for, with ample working room...Machine automatically discharges completed, firmly sealed packages to packing table.

Card feed and Blister sealing are fully automatic.

Even with this difficult pack for Masonite Corp. Peg-board hardware, speeds up to 35 or more packages per minute are obtained.

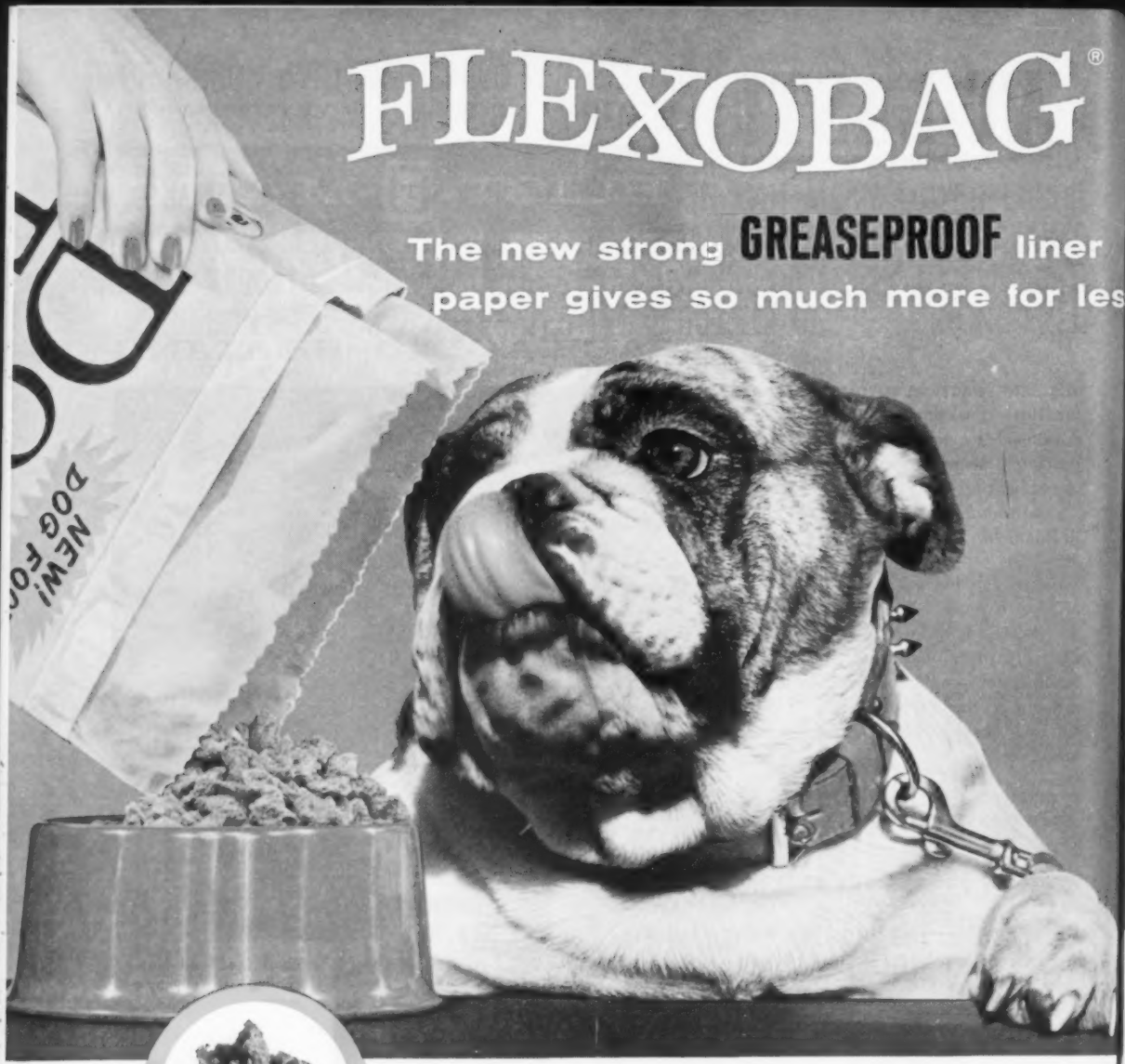
• WRITE TODAY FOR DESCRIPTIVE FOLDER, FULL DETAILS

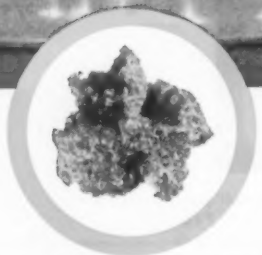
Wirth-Rhodes Corp. ★ *packaging machinery*

1914 WEST 14TH STREET, CHICAGO 8, ILLINOIS ★ MOnroe 6-3155

FLEXOBAG®

The new strong GREASEPROOF liner paper gives so much more for les





RESISTS ABRASION – by sharp edged pellets or granules. Flexobag has the strength and flexibility to resist shattering in handling and shipping.

RESISTS GREASE – Ideal for packaging "high fat" products. Excellent grease resistance–flat and creased, plus anti-crawl.

Dogs know a good thing when it's opened – especially when it is dog food protected by Flexobag Greaseproof. This new bag liner paper is being used by an increasing number of dry dog food manufacturers to assure fresh product quality and merchandising appeal by preventing penetration of fatty substances . . . *and* at packaging costs much lower than other liner materials. Flexobag combines high grease resistance with tough bulldog strength and easy handling flexibility.

Flexobag's functional advantages are ideal for use as a liner in multiwall and duplex bags. The versatile paper was developed for a wide range of difficult packaging jobs where both protection and economy are essential. It will pay to investigate Rhinelander's new Flexobag for *your* product. Write for full information and samples.

RHINELANDER

RHINELANDER PAPER COMPANY

Rhinelander, Wisconsin *Division of St. Regis Paper Company*

For more information circle No. 216 on Reader Service Card

The case of the flying flour bag

FEARLESS FULLER: Nice catch, Miss Watson!

MISS WATSON: *Oof! I played error-less ball on my business school softball team—but I never thought I'd be fielding flour bags!*

FEARLESS FULLER: And even with my fireball pitch, no flour seeped out!

MISS WATSON: *I expected to be the "lady-in-white" when I caught the bag!*

FEARLESS FULLER: Not a chance! That bag's sealed with Fuller #2575! Before they found out about #2575, the bagmaker and his customer, the flour miller, often had trouble sealing clay coated stocks used in the bags.

MISS WATSON: *And the flour seeped out, I suppose.*

FEARLESS FULLER: You're so right, Miss Watson! But that's *all in the past* with Fuller #2575. It's a high-speed duplex paste that gives a strong flexible bond. No sifting or gapping. Resists oil, grease and moisture too. #2575 seals *all* kinds of duplex bags—tighter than a Scotchman's wallet!

MISS WATSON: *I bet the bagmaker and the flour miller were relieved to learn about Fuller #2575, Fearless.*

FEARLESS FULLER: Especially that flour miller, Miss Watson—now he can grind flour instead of his teeth!

MISS WATSON: *Oh, Fearless—you're so—so—soothing!*

FEARLESS FULLER: Sleuthing's my business, not soothing, Miss Watson—but we Fuller men do keep our customers happy!

Got an adhesive problem? Call your nearby H. B. Fuller plant—and ask for "Fearless" Fuller.

H. B. Fuller Co.

INDUSTRIAL ADHESIVES

St. Paul, Minn., MI 6-8641 • Kansas City, Kansas, FI 2-3615 • Dallas, Texas, RI 7-7315 • Cincinnati 23, Ohio, MU 1-5420 • Detroit, Mich., LO 7-5980 • Atlanta, Ga., MA 2-3502 • Tampa, Fla., 45814 • So. San Francisco, Calif., PL 6-5450 • Portland, Ore., CA 6-3493 • Los Angeles, Calif., AN 3-2113 • Chicago 22, Ill., MI 2-6300 • Buffalo 7, N. Y., TR 5-6366 • Memphis 7, Tenn., JA 6-4212 • Linden, N. J., WA 5-2272 • Also Toronto, Ont., Can. • Winnipeg, Man., Can. • Fuller Adhesives International, Nassau, Bahamas

Save Sales! Stop Sifting! with... Calk-Seal*

With many items — like cereals, dry, powdered or granulated foods, soap products — consumers rarely make formal complaints when packaging fails. They just turn to another product, and you never learn about it *until the sale is lost.*

Packaging Corporation designers have developed the exclusive Calk-Seal technique to prevent sifting and infestation — assuring a positive moisture-resistant seal, *completely* tight from the time it leaves the filling line. Elimination of inner bags or overwraps makes economical higher line speeds possible.

Calk-Seal is a simple, inexpensive means of sealing cartons with a permanently pliable, non-tainting material. Positive, damage-proof sealing is accomplished by the combination of VanBuren ears and the application of Calk-Seal. Regular adhesives are used to make flap and ear seals. Failure from imperfect carton formation is eliminated. Special moisture protective laminates are available. For a modest investment, Calk-Seal applicators can be attached to existing lines. Phone or write today for information.

*Machine and process patents applied for.

Planned Packaging moves merchandise

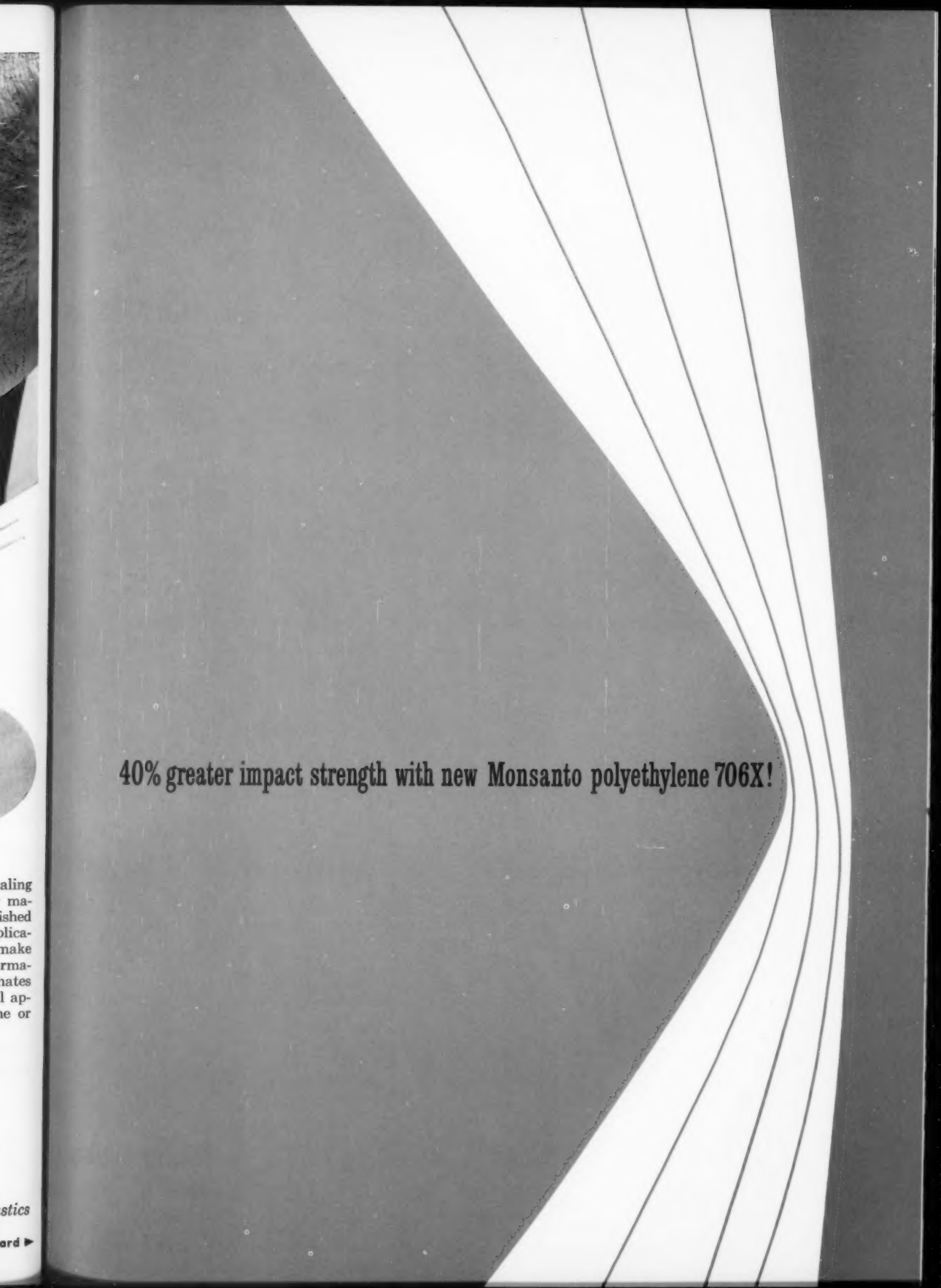
Packaging Corporation of America

1632 CHICAGO AVENUE • EVANSTON, ILLINOIS

Cartons • Containers • Displays • Egg Packaging Products • Molded Pulp Products • Paperboards • Plastics

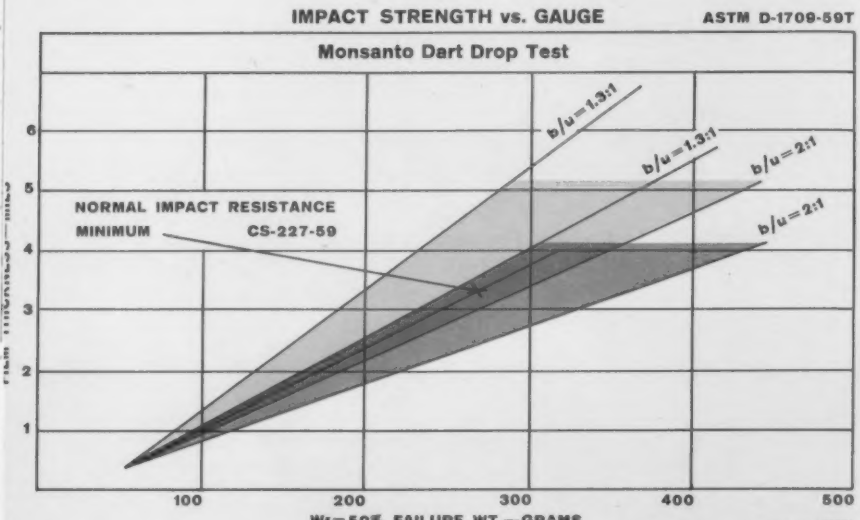
For more information circle No. 218 on Reader Service Card

Circle No. 219 on Card ▶


40% greater impact strength with new Monsanto polyethylene 706X!

MONSANTO BRINGS OUT THE BEST IN PLASTICS

ANNOUNCING POLYETHYLENE 706X, a new super high impact film resin, for industrial packaging, construction and agriculture . . . *at no increase in price!* Film extruded from 706X has demonstrated 40% higher impact strength than film from any general purpose resin in the drop-dart test (See Chart). It is available in 4 degrees of slip, has the same physical appearance as regular 706, the same unique blend-to-blend, bag-to-bag uniformity, the same excellent and consistent processability, *and the same price!* Send coupon below for new Technical Service data sheet on MP 706X, to Monsanto Chemical Company, Plastics Division, Room 819, Springfield 2, Massachusetts.



b/u=BLOW-UP RATIO = CIRCUMFERENCE OF TUBE / CIRCUMFERENCE OF DIE

MONSANTO CHEMICAL COMPANY, Plastics Division. Room 819, Springfield 2, Massachusetts.

Please send me:

☐ 706X Data Sheet—Film and Resin information
☐ Names of leading suppliers of film made with 706X

NAME.....TITLE.....
COMPANY.....
ADDRESS.....
CITY.....ZONE.....STATE.....

MONSANTO

Monsanto

THE RIGHT ADHESIVE FOR PAPER CONVERTING

(and how the Arabol man helps you select it)

1. LAMINATIONS. Whether it's paper to synthetics, metal foil to paper, paper to board, or whatever combination — laminating is *the* growth business. And laminating means bonding with adhesives for strength and other characteristics. The *right* adhesive is needed to seize two materials with dissimilar surfaces and hold them together as one substance . . . permanently and economically. Your Arabol man knows laminations. Let his knowledge help you improve your operations.

2. LABELING. Labels on glass, labels on wood, labels on metal, labels on paper and paperboard . . . labels on most anything! Perhaps you want the label to be as permanent as the container itself; or maybe you want the label easily detachable to permit re-use of the package or confidential treatment of label data. In every case, the service of the label is controlled by the selection of the adhesive. For the most effective use of your labels, at maximum economy, call in the Arabol man to select the *best* adhesive.

3. PRODUCT FORMING. From paper cups to coffee bags, soda straws to storage cartons, window envelopes to paper cans . . . paper converting needs adhesives application. As new items appear, or improved versions of conventional lines win added acceptance, it becomes important to choose the most efficient, most economical adhesive. In determining the one adhesive formulation that is best for your specific needs—your Arabol man can aid you.

4. PACKAGING. Achieve maximum utility in closing and sealing your cases and cartons — for immediate delivery and dispensing, or for extended storage with better protection for contents against contamination, damage and pilferage — with the correct adhesive designed for your requirements in this application. The unexcelled knowledge of your Arabol man covers case sealing as thoroughly as all other adhesive applications. Let him work with you.

THE BEST WAY to solve adhesive problems is to prevent them from happening. Begin by telling us *all* the conditions your adhesive must meet—in plant, in transit and after it reaches your customer. To help you evaluate these conditions more fully we have prepared an interesting booklet that can save you aggravation —and money. It's called "HOW TO BUY ADHESIVES—23 Basic Yardsticks." Send for it today.

ARABOL ADHESIVES

14 PLANTS AND WAREHOUSES TO SERVE YOU ON A LOCAL BASIS

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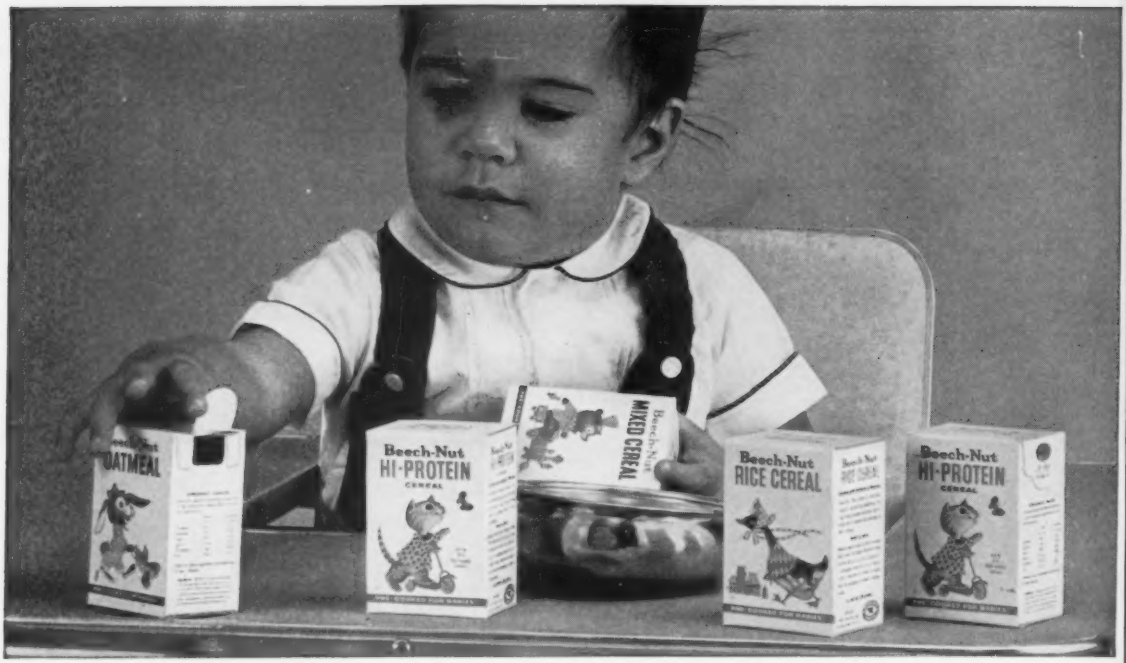
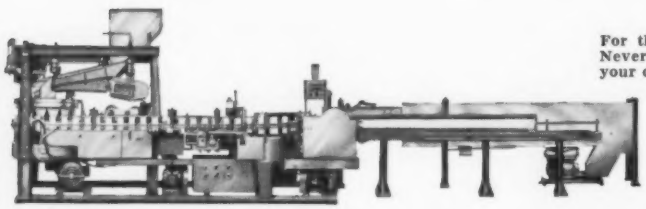


FMC Neverstop provides flexibility and high speed for Beech-Nut products

Beech-Nut Foods packages four different infant cereals on a single high-speed Neverstop, without changeover. Equipped with a Vibrametric feed mechanism, Neverstop accurately packages each of the pre-cooked cereals at 300 or more per minute . . . from carton to finished "baby-size" package in one completely automatic operation. A one-ounce, single-wall, 3-inch-high carton with tab opening pouring spout is used.

Many well-known companies rely on Neverstop for packaging such products as detergents, cereals, rice, cake mixes, etc. • The Neverstop automatically opens cartons from a magazine supply then code dates, bottom seals, fills, top seals and delivers them under the supervision of a single attendant. • Six models offer a wide choice of speeds (up to 400 per minute), capacities (up to 10 lbs.) and carton sizes (up to 11 x 5 x 15½). • Three different types of filling methods—pocket, auger and the exclusive Vibrametric system—are available to handle a broad range of product flow characteristics. New multiple filling head simultaneously fills two or three different products into a partitioned carton. • Optional equipment includes automatic checkweighing of each carton with feedback to volumetric control . . . and Calk-Sealing to eliminate the need for inner bags or overwraps. FMC also offers a complete line of both automatic and semi-automatic auger fillers for medium and short production runs . . . and SIG double package makers for products requiring inner bags or overwraps.



For the full story of FMC Neverstop fillers, write for your copy of Bulletin P-808.

Putting Ideas to Work

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Riegel

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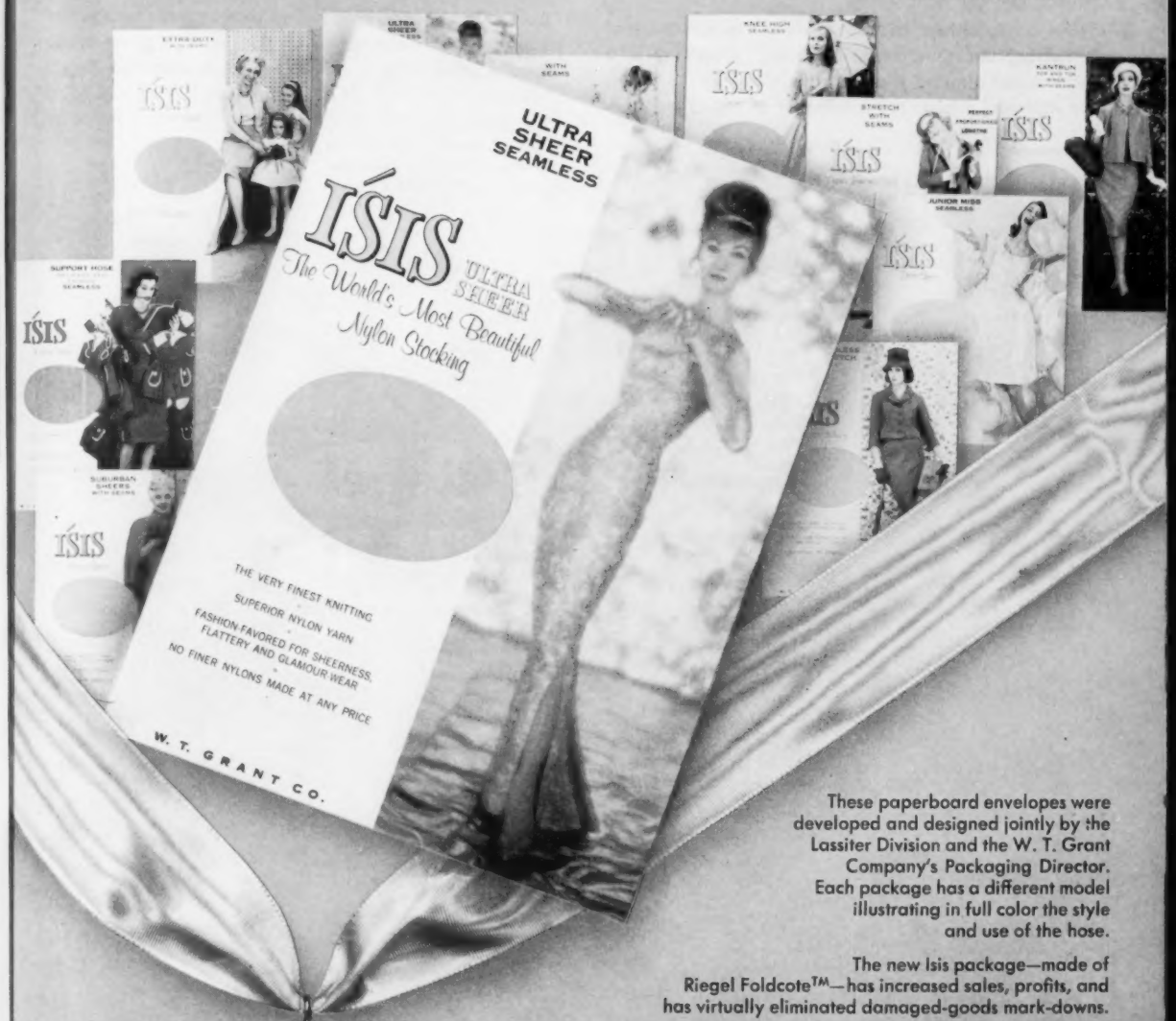
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The new Isis package—made of Riegel Foldcote™—has increased sales, profits, and has virtually eliminated damaged-goods mark-downs.

Whether you need this eye-stopping sales appeal . . . or protection for anything from potato chips to hygroscopic powders . . . or greater packaging machine efficiency . . . or just plain packaging economy . . . Riegel can help you.

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Flexible packaging...carton board...folding cartons...carton liners

Hershey keeps promise of good taste with a special Riegel inner wrap

A special Riegel glassine helps Hershey bars keep that clean look and appetizing taste.

Always good, always fresh . . . that's the success story of the Hershey bar. One reason is the bar's innerwrap of a special Riegel glassine. It protects the chocolate . . . and its crisp whiteness adds to the anticipation of eating pleasure.

Riegel packaging materials are a tradition in candy . . . and in many other industries. Call on us for help in finding just the right paper, film, foil, or combination package, for your product. We've a flair for thinking of it as something special. Write today . . . for the new ideas come from Riegel.

Specialty Products Division
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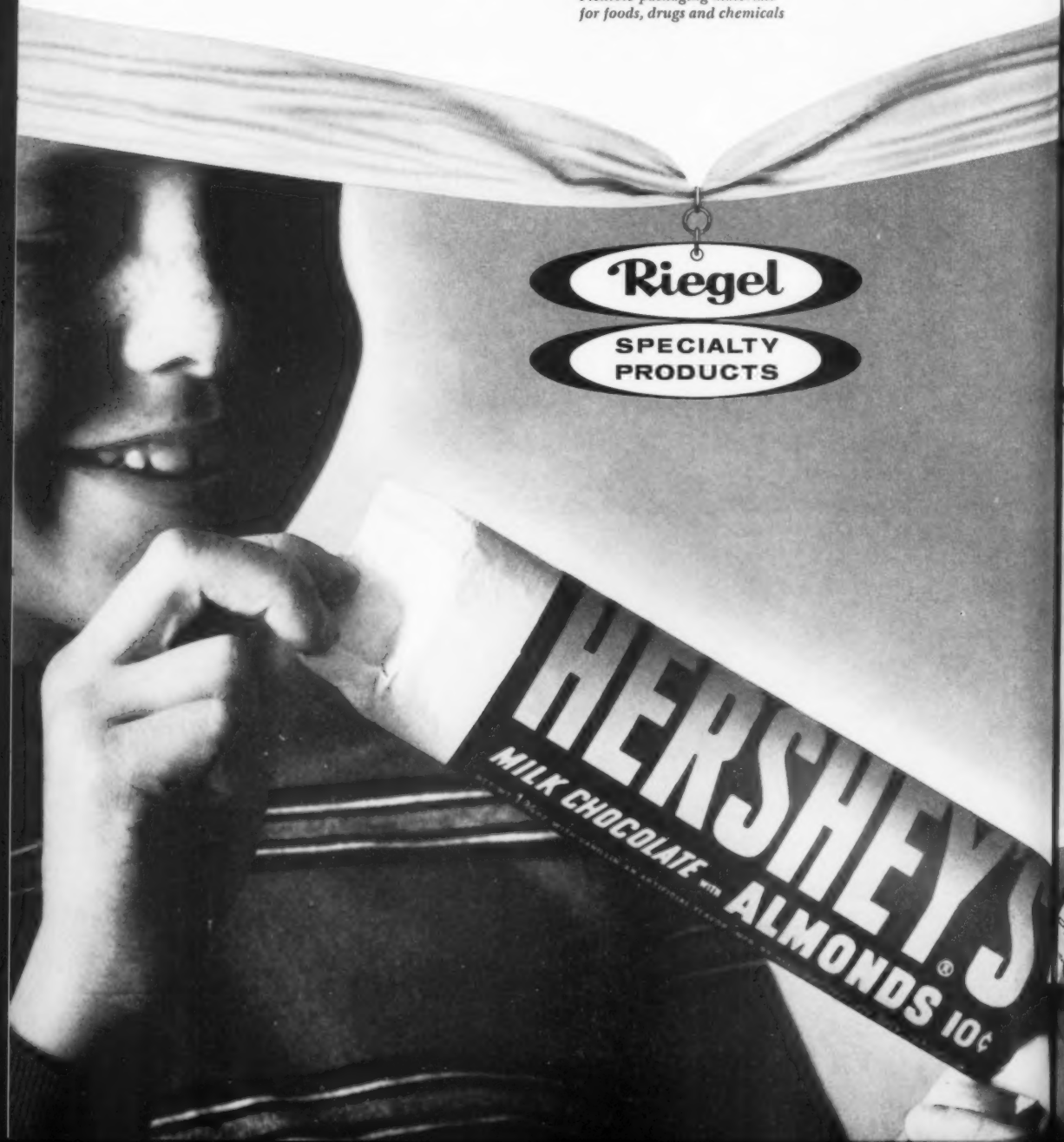
for foods, drugs and chemicals



Belk Stores build sales with unified packaging... designed and produced by Lassiter

Belk Stores and Lassiter teamed to coordinate and unify design of 90 soft-goods packages. Result: stronger store-brand identity, improved display, better inventory control . . . and higher sales per store.

Whether you're interested in men's, boys', women's, girls' or infants' soft-goods — or all five lines — you can profit from a Lassiter packaging review. As the leading specialist in soft-goods packaging, we understand both sales and production problems and we know how to create packages that promote sales and maintain your production efficiency.

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Mazola . . . another leading product that now uses Riegel Foldcote [tm]

Rigid, smooth-surfaced Riegel Foldcote is the base for this foil-laminated, register-embossed Mazola package. Carton gravure-printed and produced by Reynolds Metals Co.

Here is another example of the versatility and usefulness of Foldcote. As the strong base in this beautifully designed carton, its outstanding rigidity and uniformity provide durable embossing that really stands out . . . adds sales appeal.

Super-white, super-smooth, super-strong...Foldcote makes a rugged carton with a clean bright look. Foldcote is one of our Carolina solid bleached boards, outstanding for performance and printability. Ask for samples. Export inquiries invited. Write today . . . the new ideas come from Riegel.

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"Foldcote" machine-coated bleached boards
"Albacel" and "Astracel" pulps

Kraft Velveeta and Riegel . . .
quality cartons for a quality product

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Both superior design and high-volume production are essential to carton users. In this case, Kraft turned to Riegel for volume. Riegel's modern plants and equipment, plus personalized attention and on-time deliveries assure all volume users that their demands will be met.

Let Riegel's sales-ahead folding carton service help you. Plants both North and South offer award winning design services plus full choice of printing processes, coatings and finishes. You'll find a talk beneficial . . . for the new ideas come from Riegel.

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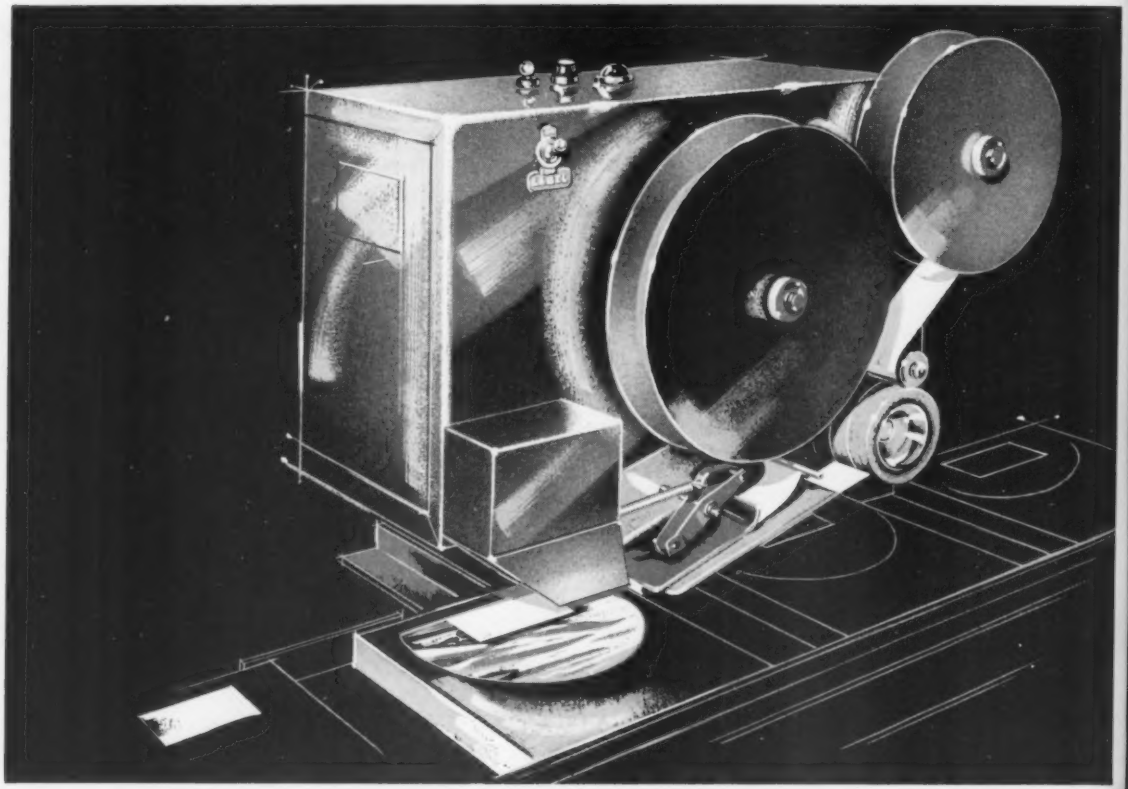
Folding Cartons of every description.
Counter display cartons. Egg cartons.

FROM KLEEN-STIK ..... WORLD'S FIRST "JET-ACTION" AUTOMATIC PRESSURE-SENSITIVE LABEL APPLICATOR!



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JET-FAST . . . JET-SMOOTH . . . JET-PERFECT!

Actually picks up and applies labels by "AIR-JET" Action!

1 In-coming air jet picks up label as it peels off backing

2 As package or product trips micro-switch, reverse (outgoing) air jet "shoots" label into exact position

Here's the machine that brings new speed, ease, and economy to pressure-sensitive labeling on the production line. Unlike "conveyor-type" applicators which pull the label from the backing by adhesive tension, the Kleen-Stik "Label-Aire" operates on an entirely new "jet action" principle. Manufactured to highest quality standards . . . thoroughly tested for reliability . . . *guaranteed* by Kleen-Stik.

No Heat - No Water - No Glue - No Hand Operations!

- Handles Kleen-Stik Roll Labels from ½" to 3" wide
- Labels any material . . . . any shape of package
- Perfect registration—adjustable to any production line speed
- Compact . . . lightweight . . . easy to use
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Write for complete details on the new Kleen-Stik "Label-Aire"

OVER 25 YEARS OF PRESSURE-SENSITIVE LEADERSHIP!

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when you make your next packaging decision, we'd like to be on hand showing you how readily liquids dispensed by the new captive cap closures are used, used up, and bought again

Sarmold Plastics Division, Totowa Borough, New Jersey

CCA CONTAINER CORPORATION OF AMERICA, CHICAGO 3, ILLINOIS

MILPRINT BRINGS YOUR CUSTOMER ENTHUSIASM TO A BOIL

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KETTLE-REDI pouches by Milprint are the first boil-in-pouches that not only won't delaminate even under temperature extremes from sub-zero to boiling, but remain unaffected by most chemical combinations, resist tearing and scuffing, *and* offer high gloss reverse printing that's *locked* in between the laminates. It can't touch food; can't rub or flake off!

In over 60 years of flexible packaging leadership, Milprint has consistently come up with answers to tough technical problems like this one. One reason: Milprint research and design experts draw on the widest variety of materials available anywhere—and are not obliged to favor any one. This means an "open mind" approach to your packaging problem—no "selling off the shelf," but a custom-built package that meets your specific marketing needs at economical cost. Review your packaging on a regular schedule with Milprint to keep ahead of your competition. Start now—learn how . . .

Milprint, Inc., Milwaukee, Wis., Sales offices and plants across the nation

KETTLE-REDI is a Milprint trademark

MILPRINT PACKAGING GIVES YOUR PRODUCT **MARKETING POWER**

**Milprint was given two merit achievement awards for* KETTLE-REDI *pouches in 1960, by National Flexible Packaging Assn.*

MACHINERY SERVICE COMPANY

purchased by

GEO. J. MEYER MANUFACTURING CO.

It is with great pride that we of the Geo. J. Meyer Manufacturing Co. announce the purchase of Machinery Service Company of Louisville, Ky.

♦♦♦

Machinery Service is now a wholly-owned subsidiary of our company and will continue at its present location in Louisville. George Craig, who founded Machinery Service in 1942 and has headed the company since its establishment, will remain with the new Division as Vice President-Engineering.

♦♦♦

Through this purchase the Geo. J. Meyer Manufacturing Co. has added to its growing manufacturing operations a company which has consistently produced the finest quality products in its field. The feeders, cleaners, fillers and conveyors manufactured by Machinery Service have had a consistently growing acceptance in the packaging industry.

♦♦♦

The Meyer organization's association with the personnel of Machinery Service goes back many years and three years ago we concluded an arrangement whereby Economic Machinery Company of Worcester, Massachusetts, a division of the Meyer Company, became their exclusive sales agent.

♦♦♦

As a result, we have an intimate knowledge of their products, experience with their sale, and complete familiarity with their installation and servicing. Economic will continue to handle the sales, installation and servicing of the equipment.

♦♦♦

We are pleased that George Craig will continue as Vice President-Engineering, for we value his long and close association with the packaging industry. We are certain that his many contributions in the future will assure the continued success of Machinery Service Inc., which is the new corporate name of the company.

♦♦♦

Geo. J. Meyer Manufacturing Co.

CUDAHY, WISCONSIN

High-speed packaging for ALL with low-cost Kliklok

One of the St. Regis ways to Systematic Packaging – Look at all the things that now can be packaged–more profitably–with a compact Kliklok system from St. Regis®. You'll pack faster, more economically with the automatic operation of Kliklok machinery plus glueless, space-saving cartons. Printed box or plain, your package is firmly locked to assure rigid product protection, fewer "cripples."

The Folding Carton Division offers Kliklok machines in various models to suit individual product and production needs. Guaranteed for dependability, a Kliklok system also can be adapted to different sized cartons in as little as five minutes . . . adapted to pace your line at the tempo you want. It's your all-around cost-cutter!

Kliklok is only one of the complete, modern packaging systems from the St. Regis Folding Carton Division. Systems designed to produce better packages at lower cost. Drop a line to the plant below nearest you. Specify what you make, and we'll send details on the best St. Regis way to improve your packaging *systematically*.

FOLDING CARTON DIVISION

St.Regis PAPER COMPANY

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GULF CARTON COMPANY, PENSACOLA, FLA.
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POLLOCK PAPER COMPANY, DALLAS, TEX.

SILICONE NEWS from Dow Corning

Such Sweet Parting

Silicone Coatings Speed Unpacking, Reduce Waste, Step Up Production

Dates, candy, sweet rolls . . . will always be sticky, but that's no problem in packaging now that Syl-off® coated papers are readily available. Syl-off silicone paper coatings provide stickproof surfaces to a wide variety of food packaging materials and in-plant processing aids — kraft, parchment, glassine, boxboard, drums, bags, interleaving liners — permit quick, easy and complete removal from even the stickiest food products.

Food grade Syl-off coatings don't migrate, don't contaminate, don't transfer . . . and the use of paper coated with these silicone anti-adhesives to package foods is in compliance with provisions of the Food Additives Amendment of 1958.

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Benefits you . . . whether you be packager or user. Syl-off coated papers come away cleanly and easily from the stickiest products — save time and money — help create repeat sales. Everyone gains.

What's your sticky problem? Will Syl-off solve it? Write today for more information and complete list of Approved Sources for Syl-off coated wrapping papers, bags, containers, drums, and processing aids with Syl-off coatings. Dept. 6417a

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Does your product need a better container? Call your nearby Gaylord Man. Let him and Gaylord Research go to work for you now.

CROWN ZELLERBACH CORPORATION
GAYLORD CONTAINER DIVISION

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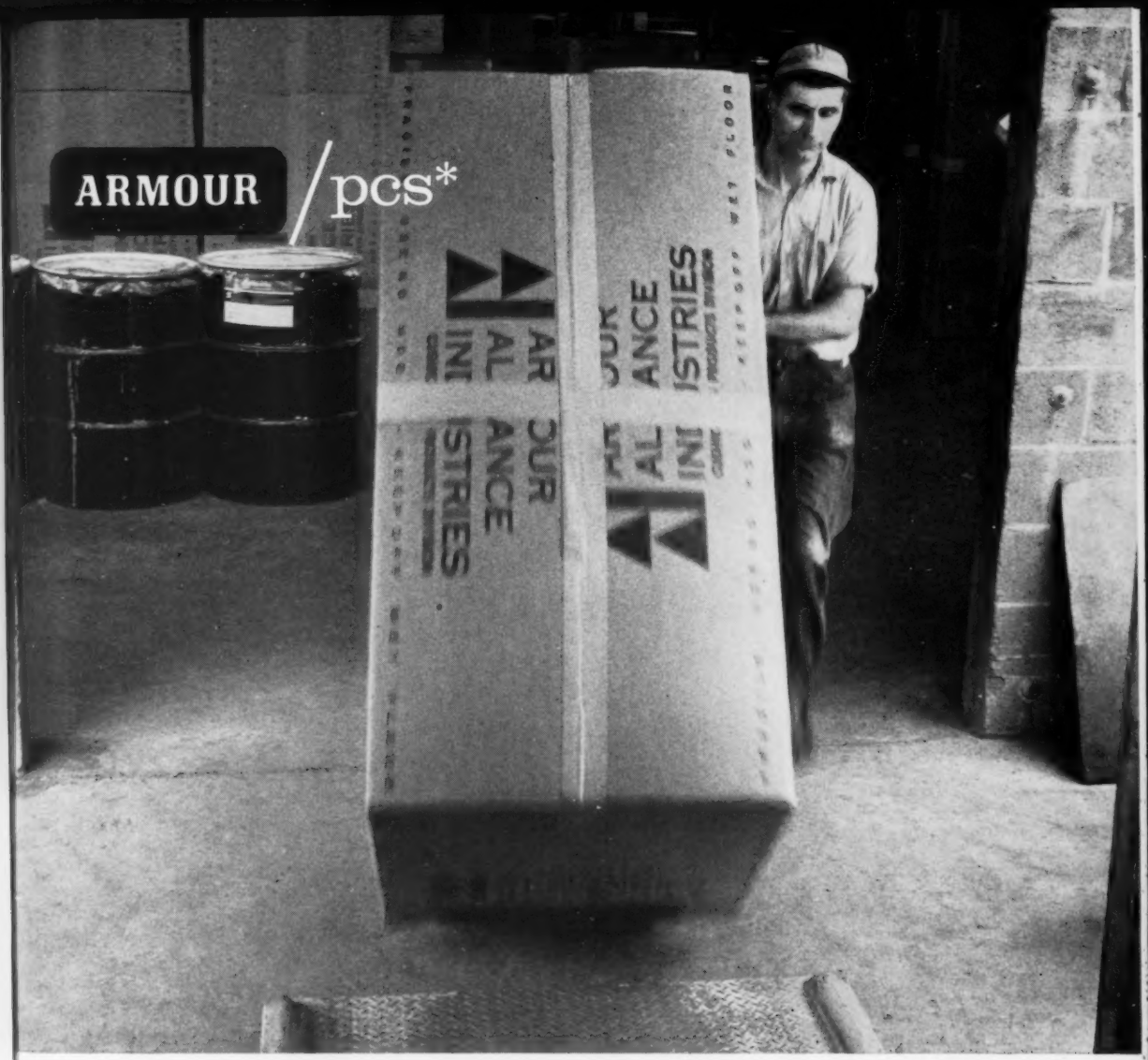
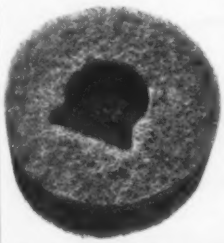
HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST



*protective cushioning service moves fast to protect your product



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CUSHIONING PRODUCTS DIVISION
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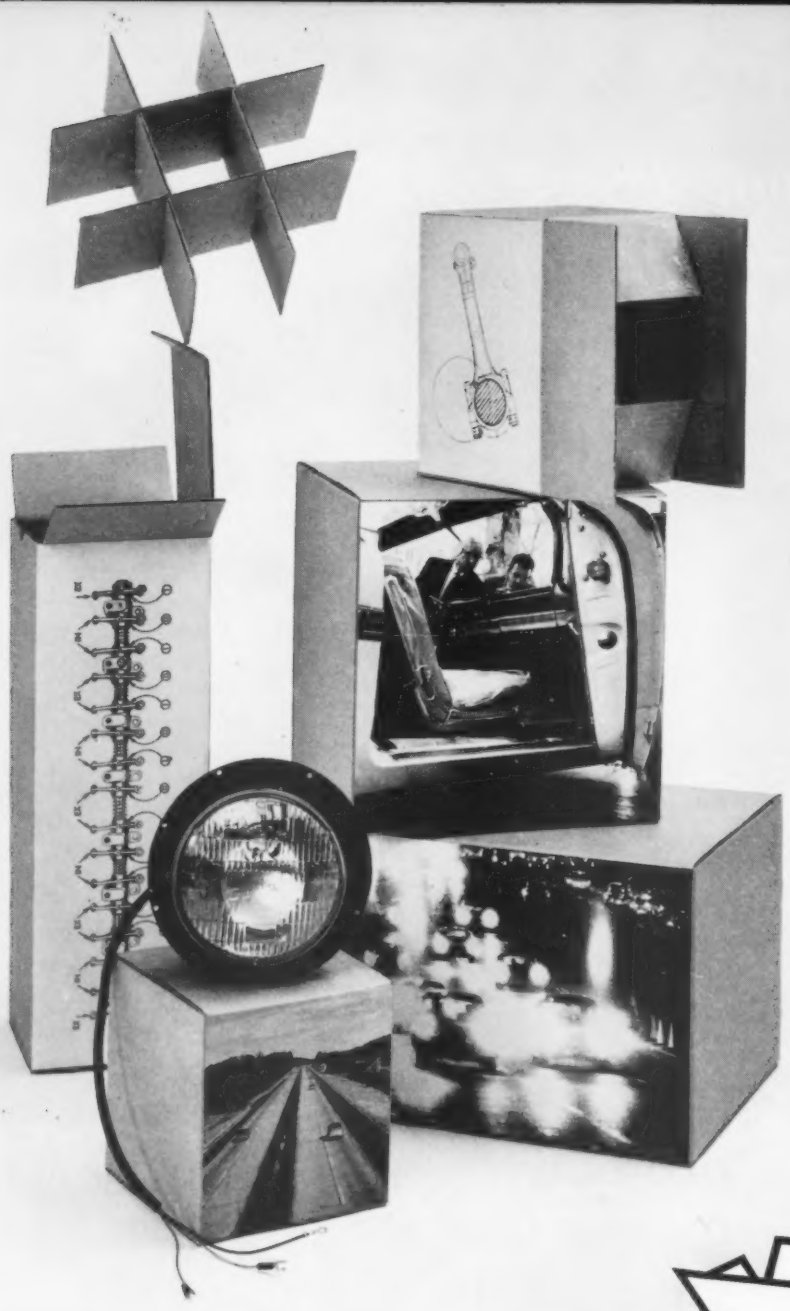

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Advance planning speeds cleanup, changeover

1. **Matching containers and products from run to run**
2. **Using equipment that prevents product residue accumulation**
3. **Making mechanics and setup men feel they belong to the "team"**
4. **Systematically applying efficient methods and techniques**

Careful planning rather than "mystery methods" or "secret weapons" leads to efficient cleanup and changeover, according to McCormick & Company's Schilling Division plant in San Francisco. Its methods meet the pace typical of today's production urgency. They get results without excessive assignment of manpower or working hours to cleanup and changeover.

Knack Of Minimizing

Focal points of this plant's cleanup and changeover problems: Its variety of products are packaged in various container sizes and in runs of varying lengths. Products range from powdery or flaky items through abrasive, sticky, or oily ones. Further, some products congeal quickly, thus stressing the need for speedy machine cleanup.

The basic pattern of the plant's advance planning is to do all it can to avoid or minimize cleanup and changeover. This means:

1. Planning runs according to container size and product similarities.

2. Using equipment that cleans out machinery as it operates, thus preventing accumulations of product residue left from filling.

3. Making the mechanics and setup men feel they are "part of the team" and letting them function as such.

4. Applying efficient methods in a systematic way—all geared to cutting downtime.

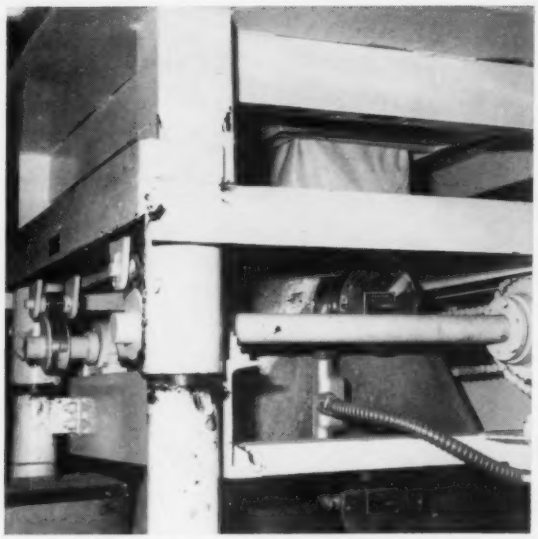
Save Time, Manpower

Besides this, the plant management group insists that cleanup and changeover take a reasonably short time and avoid excessive use of manpower. For example, one man working by himself is expected to clean up and change over a whole-spice line. Four men do likewise for eight ground-spice lines.

These production heads expect one man to complete an average cleanup job in 2 hr. With spice products, speed and thoroughness are necessary when cleaning up and changing over a line. Products such as chili mixes congeal in 2 hr.

ADVANCE PLANNING OF RUNS

Normal plant practice is to lay out runs according to package size. This permits running one spice after another (as long as both fit the same container) and cuts down on adjustments. For exam-



MOTOR (which Gordon L. Harlander, plant engineer, is adjusting) supplies power to drive cams (right photo) of jolter. Limit switches tripped by Bantam Bin-Dicator actuate motor. Cams lift 2,500-lb. loaded bin off its frame, then let it drop about 1 in. This loosens material in bin, minimizing residue to clean out.

ple, to fill the same size container with 2 oz. of paprika or ½ oz. of bay leaves requires only a weight adjustment at the filler.

Group Similar Products

Another technique is to group products of similar color and taste. Chili powder and paprika are both red and have many of the same ingredients. A changeover from one to the other requires a minimum of cleanup.

But this does not work where products are dissimilar, such as paprika and cream of tartar—white. The knack of keeping this from troubling the cleanup and changeover operation is to have a battery of lines—enough to accommodate scheduled runs without conflict. Proper scheduling avoids loss of time for cleanup and changeover on this account.

This plant also uses similar packaging components to minimize downtime for changeover—using the same glue to seal both plain and waxed cartons eliminates a changeover. Also, using rubber printing plates means faster changing of label printers.

AVOID PRODUCT BUILD-UP

Typical of the Schilling plant's approach to this is its use of a "jolter" on a foil packaging line. This line packages a range of sticky substances such as spaghetti and chili mixes, blue cheese mix and similar products. Purpose of the jolter is to clean out the machinery to prevent product residues from piling up.

Mechanize Machine Feed

Its use accompanies a change in machine feeding methods to eliminate excessive raw materials handling. The old way was to hand feed the machinery: Men scooped product out of fibre drums and transferred it to machine hoppers. Now, raw materials are dumped into a specifically designed 43-cu.-ft. bin with the capacity of 10 fibre drums.

In operation, a fork lift truck picks up the filled bin weighing about 2,500 lb. and puts it on an elevated frame mounted on shock-absorbing springs. A bin thus in place is connected to a Bantam Bin-Dicator. When product does not flow freely to packaging machinery, this unit senses the condition by pressure against diaphragms.

Shaking Residues Loose

When this sensing occurs, Micro Switches actuate a motor that drives four cams. As these cams turn, they raise the bin about 1 in. off the frame and then let it drop—with a resounding jolt. This jolting action joggles the material out

When the managers and supervisors of this plant found wasteful, inefficient cleanup and changeover methods nulifying the gains mechanized packaging lines produce, they developed a four-pronged approach to better methods: (1) Better planning of runs, (2) equipment to prevent residues from piling up, (3) giving mechanics and setup men a sense of "belonging," and (4) applying the right methods and techniques. All these, plus good supervision and an appreciation of production urgency, add up to a workable tool for better cleanup and changeover.

SUPERVISORS work closely with cleanup crews. Richard Birkett, production supervisor, climbs ladder to check details of machine cleaning (left photo) and learns first-hand about potential trouble spot from line mechanic (right photo). Management develops and relies on skill and judgment of mechanics.

of the bin into the flowing spout.

As a bin slams down on the frame, the springs (on which the frame is mounted) absorb the jolt. These springs have a ½-in. deflection. In normal operation there is one jolting action every 8 min.

Besides using the jolter to keep the product moving and to prevent it accumulating on machinery, the plant is applying this *principle* of avoiding residue build ups all through its packaging operations. Wherever practicable, vibrators are installed on conveyors, feeders, and hoppers (1) to keep material flowing freely and (2) to minimize residue accumulations for the cleanup man to remove.

MAKING MECHANICS "BELONG"

A third key point of the Schilling Division plant program for better cleanup and changeover is to instill pride of workmanship in mechanics and setup men and make them feel they are part of the team. But the company is careful to avoid forcing them to take pride in their work, instead, motivating them to acquire this feeling themselves.

"This means we are selective in assigning men to cleanup and changeover jobs," explained Richard Birkett, production supervisor. "Once we get a man with inherent pride in what he does, we keep him on that job—letting him develop and improve, and giving him all the encouragement he needs," he added.

The ability of line mechanics to spot potential trouble sources illustrates this approach, according to Mr. Birkett. "These men can detect a vital part that needs replacing, and we take their word for it, relying on their judgment and letting them make the change.

"This gives them confidence and challenges them to keep operations running without machinery breaking down. They know they have the responsibility for this, and they know we have confidence in their judgment," he asserted, pointing out that as a result there has been no major breakdown in several years.

"We try to instill this same sense of pride in the cleanup men," he went on. "We try various men on these jobs until we find the ones who show they take extra care in their work. We praise a job well done and let them know they are doing a vital task," Mr. Birkett noted.

Thus the human factor is as important in good cleanup and changeover as careful planning and proper selection of machinery, in the opinion of this plant's management. Essence of this is making the cleanup man feel he is an important member of the production team, these executives assert.

USING RIGHT METHODS

No matter how well the machinery and equipment perform in minimizing product accumulation, there is always some residue material to clean out. But just before the cleanup men start their work at the end of a run, another routine is followed: The foreman removes all packaging materials—cartons, cases, boxes, etc.—to avoid the chance of mixing packages from run to run.

First step in the cleanup job is the salvaging of material. Wherever practicable, crews use vacuum cleaners to salvage leftover material. They then use nylon brushes to loosen remaining material, brushing this residue into bins for salvaging.

Tools To Use

If possible, they take parts that are gummed and clean them right

NYLON BRUSHES are key tool of packaging line cleanup operation. Crew members use them to loosen product residue that vacuum cleaner doesn't get. Then they brush usable surplus into metal bins for salvaging.

on the spot. Normally they use portable steam cleaners for this job. This type of cleaner is especially effective with hygroscopic products such as onion flakes.

The normal tools of cleanup include (1) brushes, (2) vacuum machines, and (3) steam cleaners. The latter is especially helpful with whole or ground spices.

As a rule, cleanup men avoid using either solvents or air. Solvent solutions may adversely affect the running of machinery. Using air on ground spices such as cinnamon or cream of tartar means blowing these light materials all around the plant and contaminating equipment and other products.

An exception to the no-solvent rule is using Kelite or Oakite on an extract packaging line. These solutions work well on sticky products.

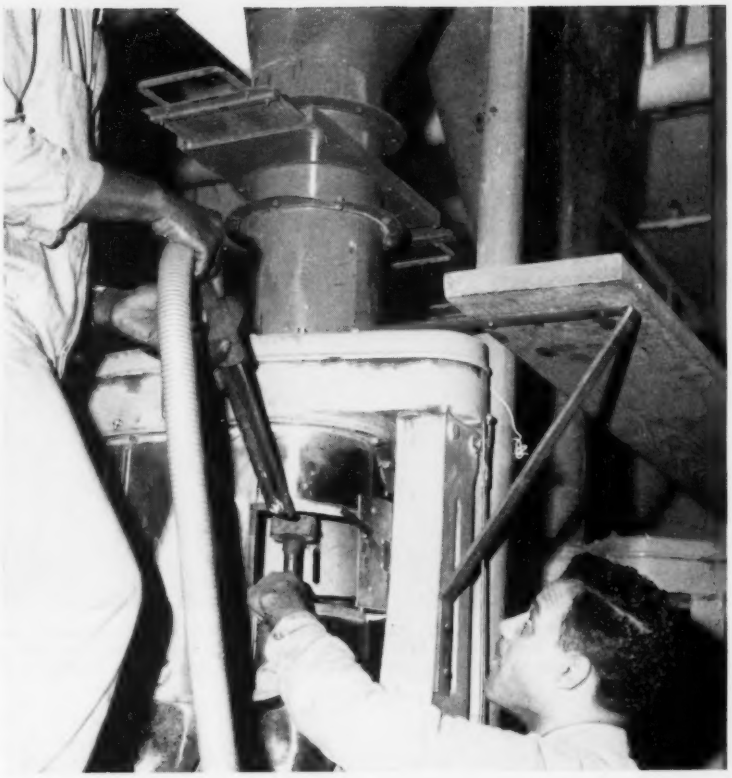
Why Tear It All Down?

At one time they thought they had to disassemble a machine to clean it adequately. Harry Wells, plant production manager, thought this unnecessary, particularly in view of the bacteriological nature of the products packaged. He asked: "As long as the surfaces of hoppers, feeders and other parts actually touching product are clean, why tear down the rest of the machine?"

So the crew members clean all machine surfaces or product contact points scrupulously, paying less attention to parts which have no contact with product—unless efficient machine running demands such cleaning. Applying this method to a filler, for example, the only part they need to disassemble and clean is the auger. Frequently crew

SCRUPULOUS CLEANING of machine surfaces coming in contact with product includes scraping filling auger with knife to remove residues that resist brushing. Auger is one of few parts disassembled for cleaning.

PLANT POLICY calls for active first-hand supervision. Clarence Baker, plant foreman, works closely with cleanup man using vacuum cleaner to remove residues. Crews clean almost all equipment without disassembling it.



members scrape it clean with a knife.

Spotting Bad Bearings

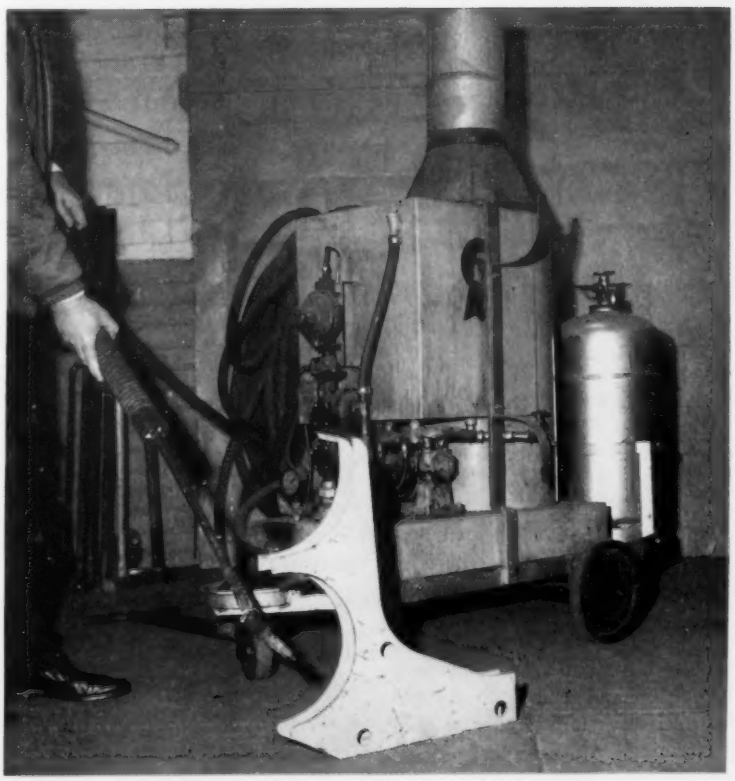
"But suppose someone wonders how this affects bearings?" Mr. Birkett speculated, noting that since many spices are abrasive and gummy, they may damage bearings. He reiterated that his plant relies on the trained eyes and skilled judgment of its mechanics to detect these parts before product contamination reaches any danger point.

"Most bearings are sealed and drive mechanisms are shielded as protection against contamination. This minimizes the need for attention to them," Mr. Birkett noted. Similarly, he pointed out that from a maintenance point of view there is less attention to belts, since Neoprene belts have largely replaced cotton ones in this plant.

GOOD SUPERVISION PAYS

Even with well-planned techniques, there still is a premium on good supervision of the cleanup and changeover operations here. Foremen and supervisors work right along with their crews, and thus have first-hand knowledge of how the work is going.

Further, the presence of foremen and supervisors who have risen from the ranks (most foremen have been on the job 15 years or longer) is an incentive to the cleanup men. Even so, the adequacy and continuity of supervision is important; after every cleanup and before starting the next run, a supervisor carefully inspects all surfaces, feeders, and similar points of product contact or machine functioning. *(End)*



PORTABLE STEAM CLEANER (it burns butane) is especially effective with hygroscopic products such as onion flakes. Attendant uses it here to clean curved part of conveying unit for filling equipment (center foreground).

OPERATOR FEEDS PARTS, each dropping into receptacle at indexed stop, to conveyor. Simultaneously, Addressograph unit (under machine) imprints paper stock fed from roll (right). Film roll (left) feeds in to meet paper to complete each package. Racks (background) hold the imprinting plates.

New methods speed packaging of tiny parts

The rising cost of preprinted envelopes and a growing reluctance of producers to turn out envelopes of sufficiently small size recently prompted Elgin National Watch Company to find a new way of packaging thousands of spare or replacement parts for its trade material division. This led to developing a form-fill-seal packaging operation using a paper and polyethylene-cellophane combination with the roll stock imprinted just prior to forming.

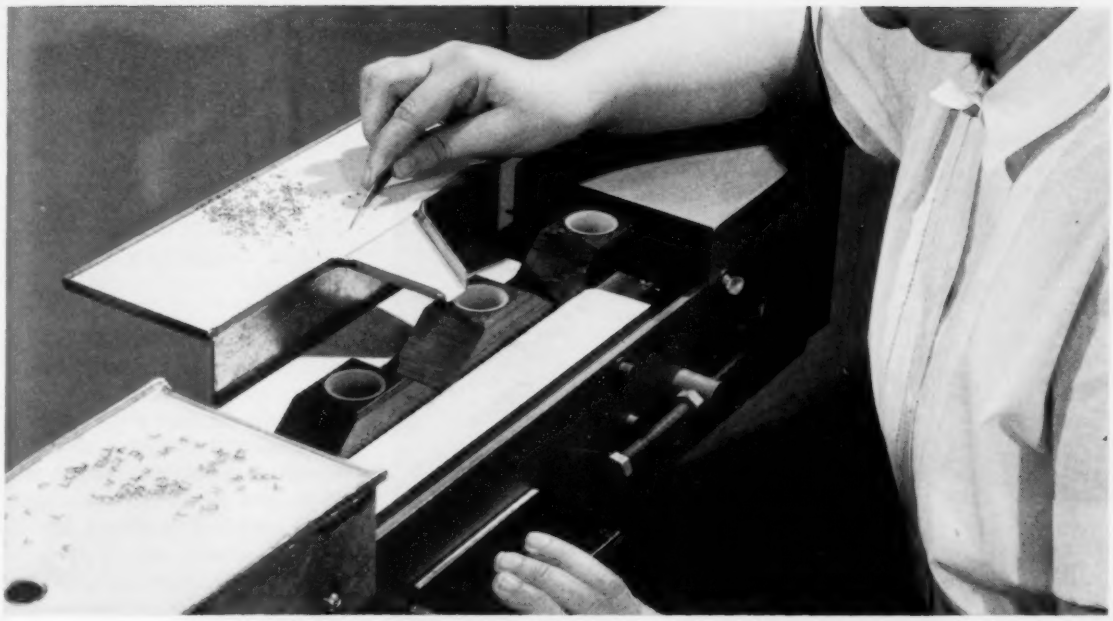
Combine Machines

Result: the combining of two standard machines with a set of feeding pockets designed to handle these small parts. This combination provides a self-contained packaging operation using minimum space for the storage of imprint plates.

Basic Components

Primary components of the operation are a standard Pak-Rapid machine using an endless-conveyor type set of wood pockets with plastic linings, loading trays designed to feed the pockets, and an Addressograph-Multigraph standard unit, mounted below the machine, to imprint roll stock before pouch forming. Printing is synchronized with machine movement. An accessible shelf holds just seven boxes containing some 2,800 of the 4,000 Addressograph plates Elgin uses for this packaging.

Basic techniques of this small



USING TWEEZERS, operator guides parts one at a time into feeding chute as indexed conveyor stops automatically in correct position to receive part in plastic cup. Tray (barely visible at lower left) has opening hole which aids feeding of parts that are too small for chute.

Elgin National Watch Company's search for efficient packaging of watch parts with minimum machinery outlay resulted in combining two standard machines, adding a set of feeding pockets, having a "knocker" to complete each fill, and developing machinery operators out of manual packagers.

parts packaging operation include:

1. Choice of two loading trays.
2. Manual part feeding techniques.
3. Machine pockets built to hold tiny parts.
4. Machine knocker to assure correct feeding.

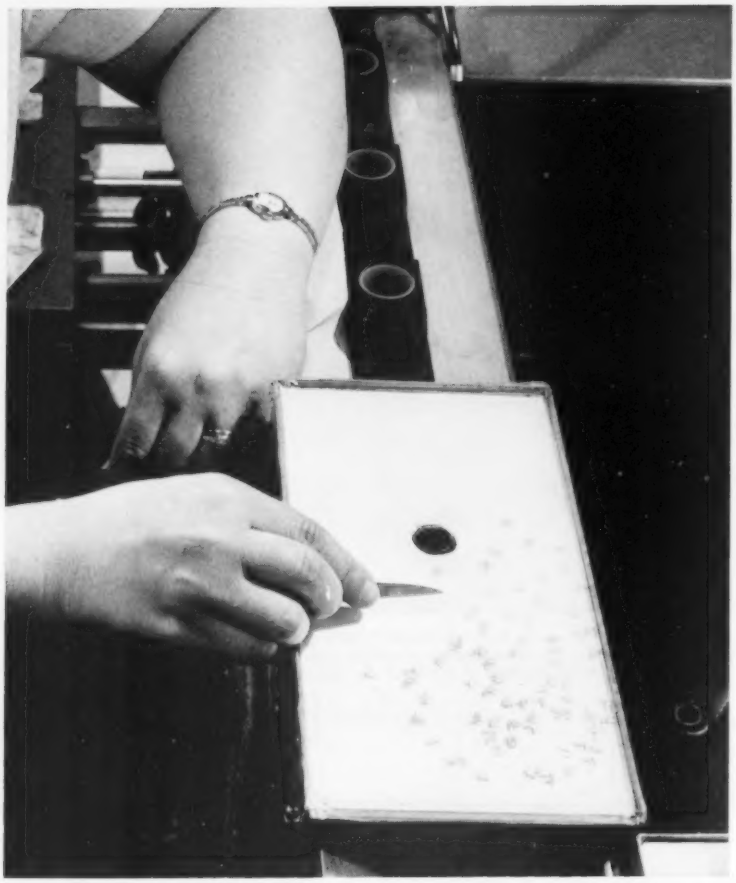
1—Two Loading Trays

Trays are sheet metal with a polypropylene surface (0.050 in. thick) for smoothness. Elgin uses two types: One has an inclined chute on which parts slide to enter the plastic-lined feeding pockets and is permanently mounted on the conveyor; the second tray merely fits over the feeding conveyor. It has a hole through which parts drop to the pockets and is used primarily for parts too light to slide—for example, tiny watch springs.

2—Manual Techniques

When using the permanent tray, an attendant puts a supply of small parts on this tray, then uses a tweezers to guide each part (one at a time) into the filling chute. Due to the intermittent motion of the machine, the filling pocket is stationary during the interval when the part drops and then slides into the pocket. The attendant thus adjusts her feeding action to that of the machine—guiding a part to the pocket while it is stationary.

Using the second tray requires a slightly different technique, but the attendant still uses a tweezers to



USING OVERHEAD TRAY, operator feeds parts directly over conveyor to insure that each drops into receptacle. This tray is used for flat parts that might tend to stick on inclined chute that is normally employed.

guide each part to drop into the hole. Instead of sliding, the part drops into the waiting plastic-lined pocket.

3—Machine Pockets

The feeding conveyor has a set of wood blocks, each having a deep plastic-lined pocket. The purpose of this lining is to provide a non-magnetic surface to avoid the effects of static electricity. The blocks move on an endless chain to the feeding point of the form-fill-seal action, thus bringing each part to its package.

The prospect of production line packaging of tiny watch parts in heat-sealed pouches with the least investment in machinery challenged Elgin National Watch Company to devise new packaging methods. Its purchasing and production people found their answer in (1) combining two standard machines, (2) adding a set of feeding pockets designed to hold these elusive small parts, (3) having a "knocker" to complete each fill, and (4) developing skilled machinery operators out of manual packagers. Result: a transparent imprinted pouch (for some 4,000 parts) handled by machine—thus replacing preprinted envelopes.

4—Knocker

At the form-fill-seal point of the machine, a metal knocking device strikes the machine body and bounces off. This takes place at the instant of feeding a part. Its purpose is to avoid the effect of static electricity whereby a tiny part might not feed properly. This knocking action assures that the part clears the machine pocket and drops into the formed package. These completed packages drop to a conveyor belt carrying them to a loading point. From there they go into containers for transfer to storage pending use in filling orders.

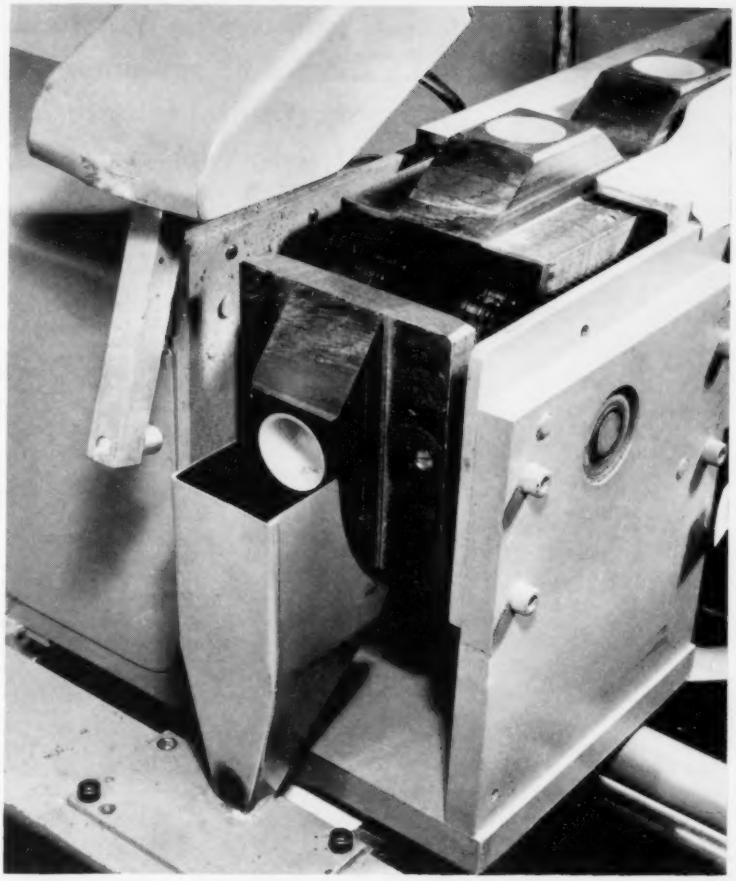
Choice Of Materials

Each resulting package is a heat-sealed pouch formed from two separate materials fed together at the form-fill-seal point. One side is transparent to provide product visibility and is a polyethylene-cellophane combination (8.3 lb./roll) 1¾ in. wide with 12-in. rolls on 3-in. cores.

The other component is paper stock on which the imprinting unit puts the identifying data. This is 25-lb. bleached kraft printed roll stock with a 0.0034-in. polyethylene coating, 1¾ in. wide per roll.

Plates For Imprinting

Use of plates for imprinting parts identification represents a significant feature of Elgin's new packaging development. While not all of its trade material division spare parts lend themselves to this package, some 4,000 do. As a result, instead of having to maintain inventories of 4,000 different preprinted envelopes, all it takes is the space necessary to store the 4,000 imprinting plates. The plant keeps the 2,800 most frequently used plates in seven boxes located within arm's reach of the machine operator. New plates are ordered from Ad-



KNOCKING DEVICE (left) used to jar parts from conveyor receptacle to insure each package receives a part. Knocker strikes wooden base of receptacle as it moves into position over the package feeding chute.

dressograph-Multigraph, which is cheaper and simpler than making them in the Elgin plant.

Production Rates

With the new package, a typical production rate is 6,000 to 7,000 packages per 8-hr. day. It is feasible to turn out 9,000 to 10,000, but this is unusual. On the other hand, the shortest run justifying use of this equipment is a quantity of 200 pieces. For long runs, the supervisor supplements the work of the day-shift operator by assigning a man to run this machine throughout the night shift.

Old Way: Envelopes

The old method which this new system replaces used a battery of people working along a bench—with each crew member putting parts into preprinted envelopes. Each operator filled the envelope and then sealed the flap (by glue pot and brush). Once sealed, each went into a container used in the order filling process.

Aside from the number of people involved and the problem of storing adequate inventories of each preprinted envelope, serious difficulties were the rising cost of envelopes and the reluctance of suppliers to make them to the small dimensions necessary for this packaging.

Limits On New Methods

Now with the new system in operation, the only parts requiring envelopes are those with shapes or configurations not conducive to form-fill-seal packaging. Parts going into the new packages must be more or less flat—not liable to poke through the package.

Elgin executives think they could extend the application of the new packaging by using deeper dies, but they have not done so because it would complicate shipping and they limit its use to some 4,000 items.

Just One Attendant

Elgin now has a self-contained packaging station with one attendant doing the entire job. He or she replaces roll stock, makes minor adjustments, clears jams, and takes basic care of the machine. Elgin production executives report no difficulty in training workers to do all these things without calling a plant mechanic—although mechanics are available in event of serious trouble. They point out that workers conditioned to the handling of watch parts are "naturals" to master the knack of packaging machinery operation.

To facilitate the attendant's work, Elgin put the stop-and-start button within reach: at the feeding point at the right of the machine rather than at the central point as is standard. This lets an operator stop the machine at once in event of missing a pocket. Normal operating speed is 30 packages/min., and Elgin maintains this speed for all parts packaged by this technique.

Avoid Use Of Ink

The reason for selecting Addressograph equipment rather than other available package marking and imprinting machinery was to avoid the use of ink, thus avoiding such matters as absorption and parts corrosion problems. A key point of using this type of imprinting is to maintain a good fresh ribbon, changing it more often than necessary with the usual type of imprinting operation.

(End)

Pointers on how to handle HDPE on many types of equipment—overwrap, fin-seal, horizontal tube forming, form-fill-seal, and twist-wrap—and heat versus adhesive sealing.

Machinability of high-density polyethylene film

By Morton H. Baker
Technical Representative, Product Development
Plastics Division, Koppers Company, Inc.
Pittsburgh

Clear, glossy high-density polyethylene film has been growing in use as a protective overwrap since its introduction in 1957 *(1, 2)*. Although some automatic equipment to handle this new film existed at that time *(3)*, lack of technology deterred its successful utilization.

Four Properties Important

In cooperation with the machinery manufacturers, we undertook an intensive investigation of this film's machine handling characteristics. Results of this work showed that certain inherent properties of high-density polyethylene film have an important bearing on the film's performance on packaging machinery. (See Table I.) These properties are stiffness, friction coefficient, tensile strength, and softening range.

Stiffness: Being three times as rigid as low-density polyethylene film, HDPE film feeds and folds easily on automatic packaging machines. It resists buckling from static drag and holds a crease. Thin gauges (0.00075 to 0.001 in.) can be used.

Friction coefficient: HDPE film is non-blocking and does not require slip and antiblock agents. Consequently, "sliding" and "release" qualities remain constant, regardless of changes in temperature and humidity. We found no changes in surface characteristics of this film during three years storage at ambient temperatures and humidities.

Tensile Strength: HDPE film is not "stretchy." Thus, accurate registration of printed material is no major problem. Also, tension control on the film is easily maintained.

Softening Range: The narrow softening range of HDPE film permits use of preheating, pressure, and hot-knife sealing techniques on packaging machines.

By applying these four proper-

Lack of technology for using high-density polyethylene film (HDPE) on automatic packaging equipment has kept some packagers from using this material. Mr. Baker cites the film's four inherent properties—stiffness, friction coefficient, tensile strength, softening range—important to its machinery performance, and gives pointers for running the material on five types of machinery. He also discusses adhesive sealing versus heat sealing of HDPE.

ties, we find that HDPE film runs successfully on many different types of automatic packaging machines. A variety of sealing techniques can be used—preheating, pressure seals, hot knife or hot wire, and cold adhesive—in addition to the usual heat-sealing methods. In some cases, the existing machine can be used without any conversion.

OVERWRAP MACHINES REGULAR SHAPES

On these machines, the film generally feeds from the side. A rotary knife cuts it to length, and it is then carried to the packaging station. A combination of tuckers and folders wraps the film around the package.

Usually, a reciprocating Teflon-coated bar sealer heat-seals the long seam. An endless Teflon-impregnated Fiberglas belt travels around the side heat-sealing plates at the same speed as the package and acts as a release barrier—to prevent the film from sticking to the sealing plates. This belt is a part of the system which seals the end folds of the package.

Machines in this category that will handle polyethylene film include Package Machinery FA models, Battle Creek Models 475 and 850, Hayssen automatics, and Oliver No. 899. In certain cases, you can convert existing models of some of these machines to handle polyethylene. Machines for polyethylene also handle other heat-sealing films.

Feeding, cutting, and folding characteristics of HDPE film make it run well on these machines. This film's stiffness and consistent surface qualities result in neat, tight packages.

Temperature Control Important

For the long seam, short dwell times and high temperature on the reciprocating bar sealer give the best seal with HDPE film. A typical sealing condition is 300°F. for 0.25 sec. Temperature variation across the bar must be controlled within ±3°F. This is accomplished by electronic temperature regulators with a thermocouple placed as near to the surface of the bar sealer as possible.

With the endless belt system for sealing the end folds, 0.001-in. HDPE film has a sealing range of approximately 40°F. at line speeds of about 60 ft./min. (approximately 70 packages/min.). This sealing range is well within the control limits of the electronic temperature regulators used on machines for polyethylene.

Preheating

By preheating high-density film on these machines, temperature control for the end seal becomes less critical. The film lends itself very well to the preheating principle because it has a narrower softening range than lower-density polyethylene films.

In the preheating technique, the first pair of sealing plates is held at about 230°F. to bring the temperature of the film within 20° to 30°F. of the softening point. The second pair of sealing plates provides a quick burst of heat to rapidly boost the film temperature into the melt zone to make the seal. Dwell time on the second plates should be relatively short—not more than 0.5 sec.

HDPE film retains its shape although near the sealing temperature. The film sets up quickly after the seal is made, eliminating the need for a refrigeration unit.

(Turn page)

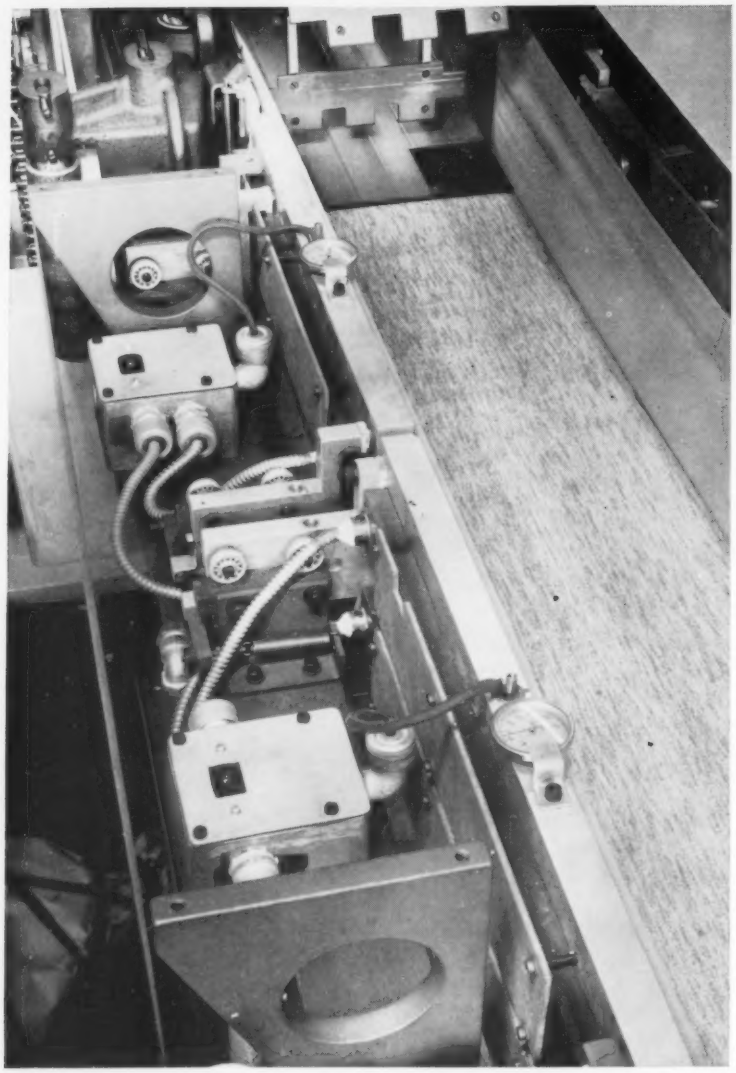
TABLE I

Properties Of High-Density Polyethylene Film*
Important To Machine Performance

Film property	Test Method	Value
Film density [23°C. (73°F.), gm./0.001 in.]	ASTM D1505-57T	0.938
Area yield (sq. in./lb./0.001 in.)		29,500
Tensile properties (20 in./min.)	ASTM D882-56T	
Machine direction:		
Tensile strength at yield		4,500 lb./sq. in.
Tensile strength at fail		6,300 lb./sq. in.
Elongation		400%
Transverse direction:		
Tensile strength at yield		2,700 lb./sq. in.
Tensile strength at fail		1,700 lb./sq. in.
Elongation		300%
Tensile elastic modulus $\times 10^{-5}$	ASTM D882-56T	39 lb./sq. in.
Elmendorf tear strength	TAPPI T1414-M-49	
Machine direction		15 gm./0.001 in.
Transverse direction		(Test not applicable)
Coefficient of friction	CS-227-59	0.5
Blocking		None
Dimensional stability (350 hr. @ 140°F.)	ASTM D1204-54	
Machine direction		No change
Transverse direction		No change
Dimensional stability (20 min. @ 250°F.)		
Machine direction		−1.8%
Transverse direction		+0.8%
Crease brittleness at −50°F. (4 in.-lb. impact)		No failure
Softening point		255°F.

*0.001-in. film made by water-quench process from Koppers' Super Dylan 6060F polyethylene.

Morton H. Baker is a graduate of Carnegie Institute of Technology with a B.Sc. degree in chemical engineering. After four years as a section leader at Monsanto Chemical Company, he joined Koppers where he has served as a cadet engineer and planning engineer before assuming his present position. Mr. Baker is a member of Omicron Delta Kappa, Tau Beta Pi, Pi Delta Epsilon, Packaging Institute (member of films, foils and laminations committee), and Society of Plastics Engineers.



ENDLESS BELTS at discharge sealing area seal end folds of package overwrapped in high-density polyethylene. Preheating of film makes temperature control for end seal less critical.

By preheating, the dwell time on the last sealing plate, instead of temperature, becomes the controlling variable for the seal. You can control dwell time easily by the length of the sealing plate and/or by the machine speed. Short plates and fast speeds give the best seals.

Preheating is possible on polyethylene machines, such as the FA models, which have multiple pairs of sealing plates. Often, you can utilize preheating on existing machines already converted to handle polyethylene.

In most conversions, the belt assembly for the end seals is connected to the discharge end of the machine, and the old sealing plates are intact. You can use these old plates as preheaters.

OVERWRAP MACHINES IRREGULAR SHAPES

This category comprises two types of machines for use with HDPE films: Package Machinery Models BW-7 and U-7 characterize one design; Crompton and Knowles Models CK/P2 and CK/TP another.

BW-7 and U-7 machines are similar in construction, except for the method of end sealing. Both machines feed the film in-line and pull it around the package. In a sense, the package measures the exact amount of film needed for wrapping.

Sealing

On the BW-7 and U-7 machines, a reciprocating Teflon-coated bar makes the bottom heat seal, and Teflon-coated rollers then "iron" the overflap flat. On the BW-7, intended primarily for bread wrapping, application of end labels, precoated with heat-activated adhesive, makes the end seals. Labels are preheated prior to application so that no direct heat reaches the end of the package. On the U-7, the endless belt technique makes the end seals, and preheating is thus possible.

Crompton and Knowles Models CK/P2 and CK/TP sheet the film, drape it over the package, gather the film on the bottom of the package, and heat seal the gathered folds. A Teflon-coated roller assembly makes the heat seal. Typical packages wrapped on these machines include stacks of paper plates, heart-shaped candy boxes, pizza pies, and open trays of fruit.

Conversion units are available for all of these machines.

FIN-SEAL MACHINES

Crimp seals on all four sides of a flat rectangular package generally characterize fin-seal machines. The package is made by continuously sandwiching the product between two webs of film, making the end and side seals with matched pairs of crimping dies, and cutting the packages apart with a cold knife.

No Changes Necessary

Fin-seal machines can handle HDPE film *without making any modifications to the machine*—by keeping the temperature of the crimpers as close to, but *below*, the softening point of the film. The electronic temperature reg-

Who developed

a cellophane with greater transparency than any other?

a cellophane that heat-seals at lower temperatures than any other?

a cellophane that cuts meat wrapping costs up to 10%?

a cellophane that keeps potato chips and other high oil-content foods saleable 50% longer?

a cellophane that withstands sub-zero temperatures for months without shattering?

a cellophane that is completely impervious to grease?

a cellophane that gives tough, tight wraps for the largest, boniest cuts of meat?

a cellophane that keeps cupcakes, pound cakes and jelly rolls fresh 12 days instead of 7?

a cellophane that stays clear and sparkling under constant refrigeration?

a cellophane that assures maximum resistance to cockling?

a cellophane that combines greater economy, stability and durability than any other?

Olin did.

Strong claims? Of course, but each is backed by exhaustive laboratory tests or actual customer reports.

And we're working constantly to develop other new cellophanes to give your product maximum protection and sales appeal.

If you have a cellophane packaging problem, see your Olin representative or converter. We probably have just the cellophane to meet your specific needs. If not, chances are, we're already working on it.

PACKAGING DIVISION Olin

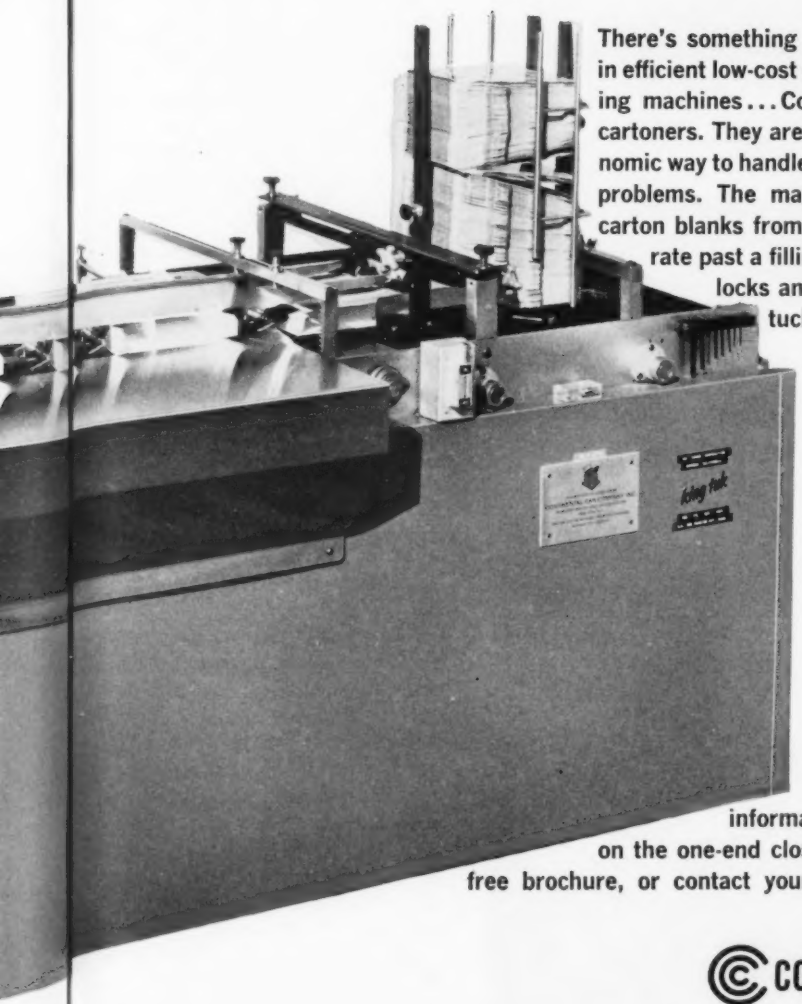
FILM OPERATIONS, 460 PARK AVE., NEW YORK, N.Y.

CUT PACKAGING COSTS WITH CONTINENTAL'S KING-TUK TEAM OF LTG* CARTONING MACHINES

*LOCK, TUCK, OR GLUE

KING-TUK CLOSEMATIC CARTONER

KING-TUK
OPENMATIC CARTONER



There's something new in efficient low-cost cartoning machines... Continental's exclusive King-Tuk LTG cartoners. They are the most versatile, simple, and economic way to handle all small and medium size cartoning problems. The marvelous King-Tuk Closematic feeds carton blanks from a hopper, conveys them at a given rate past a filling station, then securely locks (edge locks and interlapping flaps), tucks (reverse tuck or straight tuck), or glues (four flap seal end) them closed. The full and sealed carton is ejected, ready to be loaded into freezer trays and shipping cases. Because of its special design and perfect timing all parts travel at the same speed as the carton. The result is a continuous motion operation capable of setting up and closing as many as 90 cartons a minute. There is a minimum of carton spoilage because the slightest jam stops the machine. And fewer moving parts make the maintenance of the King-Tuk Closematic economy itself. For further information on this cartoning must... also on the one-end closing Openmatic... write for detailed free brochure, or contact your Continental representative today.

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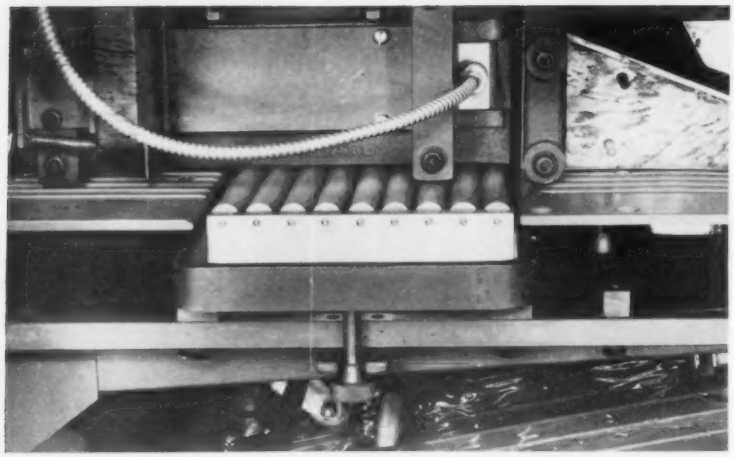
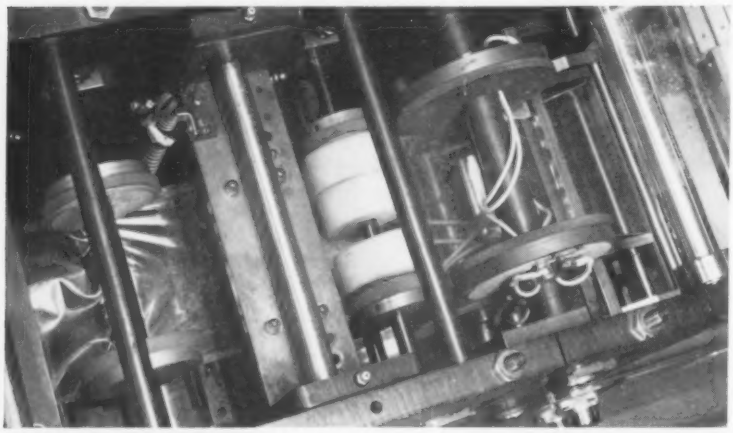


TEFLON-COATED ROLLERS "iron" bottom overlap flat after reciprocating Teflon-coated bar makes bottom heat seal for irregular-shaped product overwrapped in high-density polyethylene.



MATCHED CRIMPING DIES make side and end seals of fin-seal package. Usually, fin-seal machines can handle high-density polyethylene film without machine modifications. But for good results, you must hold crimper temperature close to, but *below*, film softening point.

TWO TYPES OF SEALS on high-density polyethylene film: Heat seal (lower package) shows wrinkles and puckers, but cold-setting-adhesive seal (upper package) is reasonably smooth.

ulators already on the machine can readily control the temperature of the crimpers at 210°F. ±20°F. Peel strengths in excess of 2,000 lb./sq. in. have been realized for high-density film that was crimp-sealed in commercial installations of this type machine.

The stiffness and narrow softening range of HDPE film make it well-suited to this type of seal. A combination of heat and pressure in the nip of the crimping dies causes this film to "flow" into the crimp shape. The narrow softening range permits using a maximum amount of heat without risk of the film sticking to the bare metal surface of the crimper. The film's stiffness prevents the crimp from "springing out."

Crimp Pattern Important

Crimp design has some effect on the peel strength of the seal. For best results, a fine crimp pattern—400 or more impressions per square inch—should be used.

Note that crimp seals made in this manner on HDPE film are not hermetic. Consequently, this type of package can not be used for liquids or products requiring such protection.

Both the Roto Wrap Model B and Wrap-Ade fin-seal machines handle HDPE film satisfactorily. The Roto Wrap has electronic temperature controllers as standard equipment, whereas most Wrap-Ade machines include Variacs instead of temperature controllers to heat the crimping wheels.

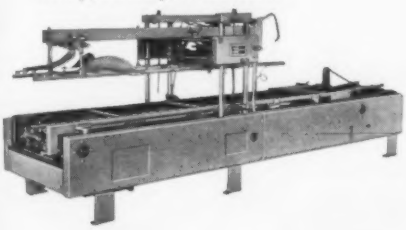
For continuous operation with HDPE film, temperature controllers should be installed. Otherwise when the machine is stopped, the constant energy output from the Variac raises the temperature of the crimpers above the softening point of the film, causing the film to stick to the metal surface. Putting temperature controllers on a fin-seal machine represents a very minor expense.

HORIZONTAL TUBE FORMING

The FMC Hudson-Sharp Campbell wrapper forms the film into a

ugh!

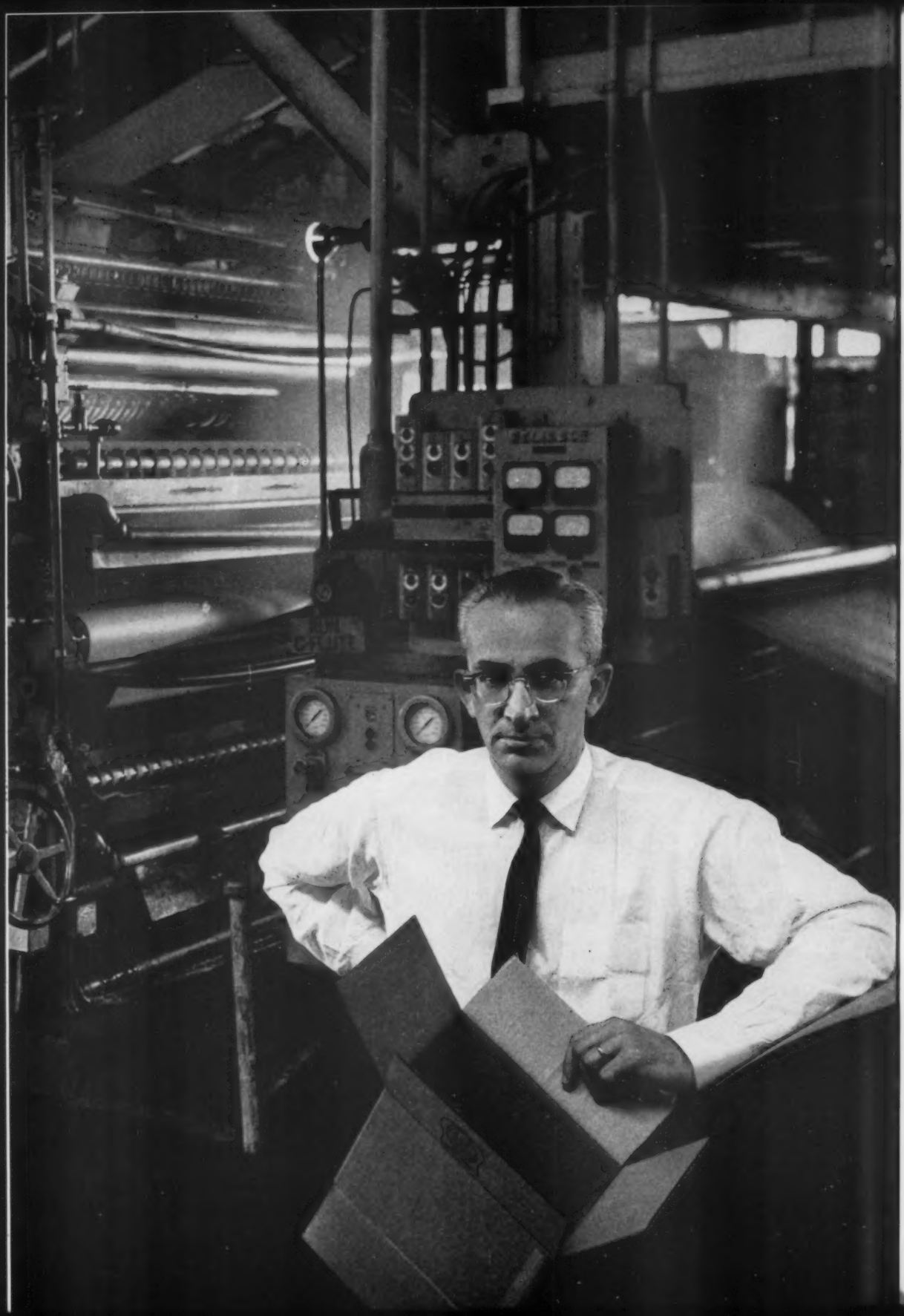
The Standard-Knapp Type 455 Glu-Liner glues cases neatly, securely, at low cost.



UGH! sums up the way a man feels when he sees how unnecessary it is to be messy and wasteful in case gluing and sealing. When he sees that messy glue pots like the one shown are things of the past — that now he can put his cases through a unit that applies glue in neat, quick-gripping stripes instead of wasteful bands — that applies glue only on case flaps in a precise skip-gap pattern — that employs a pressure-fed, airtight system proven in hundreds of installations.

If case gluing is a key operation with you, then you ought to investigate the Standard-Knapp Glu-Liner — the new and field-tested case gluer that's always ready to go, that glues your cases but not your product or floors, that pays for itself in glue savings alone. For the solid cost-reducing facts, write Emhart Manufacturing Company, Portland Division, Portland, Connecticut.

EMHART



His specialty is collision insurance

Thorne Kitchel's "crash program" can often save thousands of damage-claim dollars for corrugated box users.

THORNE KITCHEL is strictly a no-chances-taken man. The battery of tests he puts new containers through assures that the design and construction are adequate for a product *before* production begins.

Thorne heads up a team of seasoned "security analysts" at Union-Camp's packaging laboratory. In his 15 years as a corrugated box specialist, he has tested thousands of boxes designed to protect all kinds of products. He's also helped save thousands of damage-claim dollars for their owners in the process.

At the Union-Camp packaging proving ground, Thorne and his staff test new shipping containers for their ability to withstand almost any conceivable threat to product safety. Sudden rail-car stops and starts, for example. Punctures from sharp objects. Resistance to extremes of temperature. Accidental falls. Vibration. Or the extent to which a shipping container will protect your products under the crushing pressure of high stacking.

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TABLE II

Effect Of Polyethylene Film Surface On Adhesive Seal Strength

Polyethylene Film Type	Slip Agent	Film Surface	Shear Strength (lb./sq. in.)
Low density	No	Rough	850
Low density	Yes	Smooth	1,800
High density	No	Very smooth	3,650

TABLE III

Adhesive Seal Strength For High-Density Polyethylene Film*

Adhesive Formulation (parts by volume)		Shear Strength	Peel Strength
Adhesive	Solvent	(lb./sq. in.)	(lb./sq. in.)
1	—	3,650	1,050
3	1	3,650	1,050
1	1	3,650	750

*0.001-in. film made from Super Dylan 6060F polyethylene.

tube around the product, which is moving in a horizontal plane. A large rotating heated wheel covered with Teflon tape, or a hot nichrome wire, heat seals the overlap of the film tube (back seam). The film then passes between matched rotating cylinders which make the end seals and cut the packages apart.

Variety Of End Seals

All folding and sealing operations are done in a continuous motion. A variety of end seals can be made with HDPE film on this machine.

Hot wire: A hot exposed nichrome wire makes a strong bead seal on the end of the package and at the same time makes a "hot cut" to separate the packages. A minimum amount of film is thus used. This type of seal works well with HDPE film, which responds quickly to the hot wire. There is practically no "feathering" at the seal because of the film's low melt strength.

Serrated bead seal: This is basically the same as the hot-wire seal, except that the wire is bent into a zig-zag pattern to give a serrated cut and seal.

Teflon-covered wire: A Teflon-impregnated Fiberglas cloth over the heated wire makes a normal heat seal on the end of the package, without the cut-off. A cold knife, set into the rotating cylinder carrying the wire, cuts the packages apart. The cut-off is generally about 0.25 in. from the seal.

Pressure seal: This seal involves the use of matched, heated crimpers set into the rotating cylinders. Seals are made in the same manner as on the fin-seal machines. Thermostats control the temperature of the crimpers at 30° to 40°F. *below* the softening point of the film. A cold knife mounted between the crimpers cuts off the packages.

Additional end-seal designs are possible by combining the crimp seal with a hot-wire cut-off. The hot cut-off provides a hermetic bead seal at the edge of the crimp.

It is also possible to undertuck the crimped ends and heat seal them to the bottom of the package by the Teflon belt technique.

With HDPE film, speeds in excess of 200 packages/min. can be maintained on this machine without losing register. Existing machines can be converted to run this type of film with any of the end-seal designs previously mentioned.

FORM-FILL-SEAL MACHINES

Of all automatic packaging machines, the form-fill-seal machines are perhaps the easiest to convert for polyethylene film. All heat seals on these machines are made in the stationary phase of a "stop-go, stop-go" cycle. Generally impulse sealers are used. Teflon-impregnated Fiberglas cloth is positioned over the sealing wire to prevent sticking of the film. Some of these machines use an exposed hot-wire seal and cut-off for the ends of the package.

Stays In Register

When registration of printed matter is required on form-fill-seal machinery, HDPE film performs well at fast speeds (100 packages/min.). Web tension increases at faster line speeds, but the high tensile strength of this film allows it to be handled under increased web tension without stretching and losing register.

High-density polyethylene film runs satisfactorily on the following machines: Hayssen Compak, Triangle L-2 Models, Lynch Robo-Wrap, Package Machinery Transwrap, and Mercury Verti-Pak.

TWIST-WRAP MACHINES

We can not yet consider HDPE film, by itself, as operational on twist-wrap machines. It runs on the Forgrove Model 42C twist wrapper with limited success. The film does not hold a twist as well as cellophane or waxed paper—the one-and-one-half twist made on the Forgrove machine unwinds about half-way with high-density polyethylene.

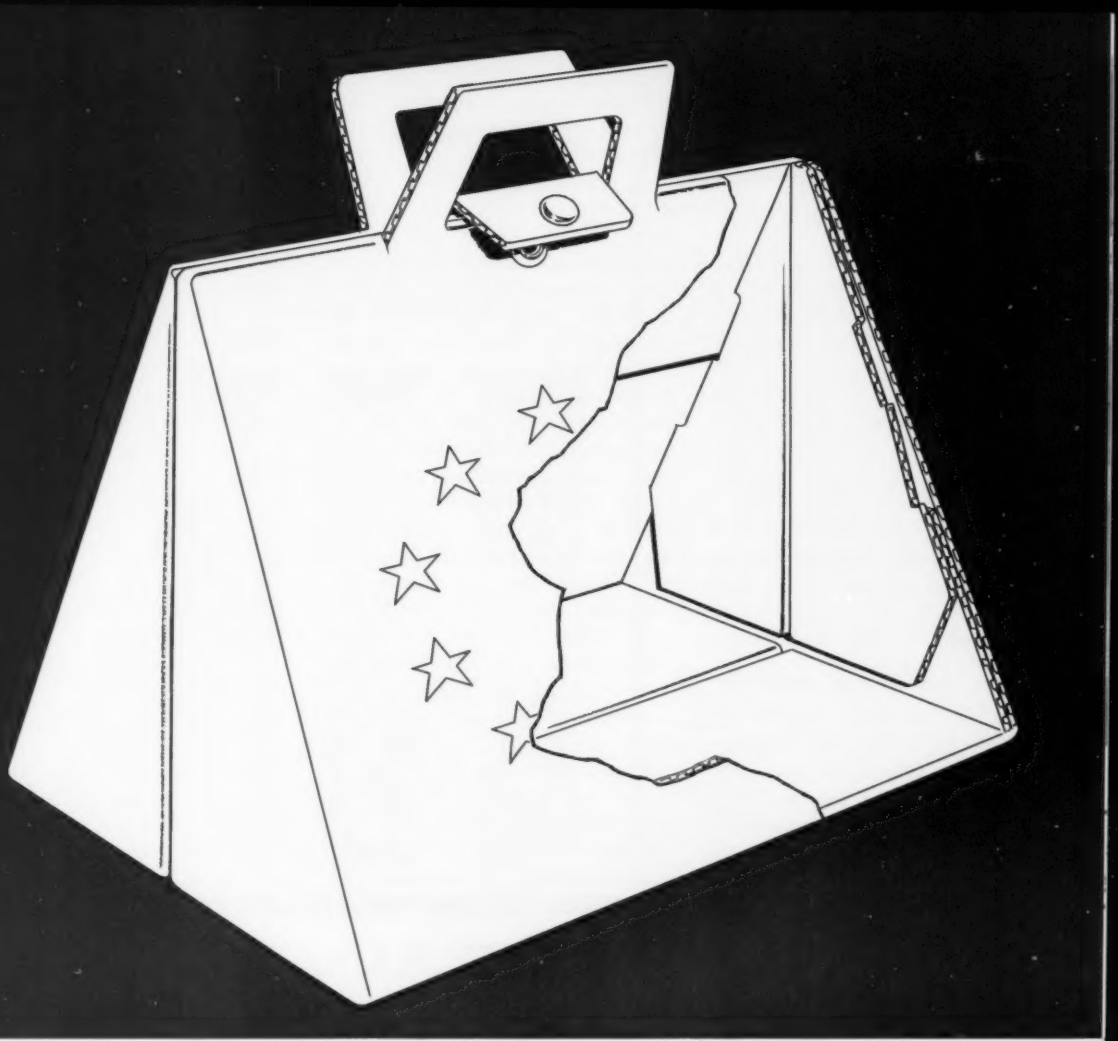
It is desirable to put a static eliminator in the area of the cutting knife on this machine. Care must be taken to keep the knife sharp and clean, and to adjust the knife clearance to a minimum. The metal surface above the knife should be Teflon-coated to prevent static buildup.

Thin Film Best

The thinner the high-density film, the better the film holds the twist. Hence, 0.00075-in. film (the thinnest material currently available) gives the best results.

One advantage the film has as a twist wrap for soft taffy-like candies is that the candy releases easily from the film. There is no sticking to the candy and no tearing.

The film's low cost makes it feasible to use a double wrap consisting of HDPE film and an inexpensive paper. When used as the inside liner, the film acts as a re-



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lease paper and is effective as a moisture barrier. The outside paper wrap provides a tight twist seal.

ADHESIVE SEALING

Although the use of cold adhesives to seal HDPE film is still in the machinery development stage, it has shown sufficient promise to warrant discussion here.

Heat sealing of polyethylene film causes the molecular orientation in the heat-seal area to differ from that in the film surrounding the seal. These orientation differences set up differential stresses in the film, causing unsightly wrinkles and puckers. Desire to eliminate this condition has led to investigation of other sealing techniques.

Prefer Cold-Setting Adhesive

Solution to the problem apparently lies either in a cold-set adhesive or a heat-seal coating on the film which can fuse at a temperature lower than the softening point of the film. We consider the adhesive approach more desirable from a cost, application, and performance standpoint.

A heat-seal coating (e.g., vinyl-coated polyethylene) means added expense in the manufacture of the film, and we cannot expect it to give as strong a seal as an adhesive.

HDPE film seems suited for adhesive sealing—there are no slip additives on the surface of the film to interfere with the adhesive bond, and the relatively smooth surface of the film provides maximum contact in the seal area. (See Table II.) The film rides smoothly over a glue wheel because of its high stiffness. For the same reason, it does not drape in a folder; otherwise the adhesive on the inside surface of the film would come into contact with the folder and cause the film to drag.

Of the many adhesive formulations investigated, several now commercially available seem to have the right combination of properties to produce seals completely transparent and nonwrinkled. Adhesive cost is approximately $3.00/gal.

Seal Strength

The shear and peel strengths of the adhesive seals are surprisingly high. (See Table III.) Since normal handling of an overwrapped package places only a shear stress on the seal, a high shear strength is important. Peel strength is not as critical. In fact, for some products a low peel strength is desirable for easy opening. In view of this, it is interesting to note from Table III that, with increased solvent concentration, the peel strength decreases, but the shear strength remains constant. Thus a dilute adhesive formulation gives a strong, but peelable, seal.

We have not seen any appreciable difference in seal strength of treated versus untreated film surfaces for the adhesives tested. These adhesives had no effect on the printing inks normally used on polyethylene film and can be used with metal glue pots (bronze,

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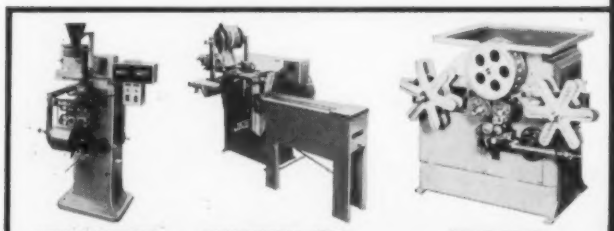

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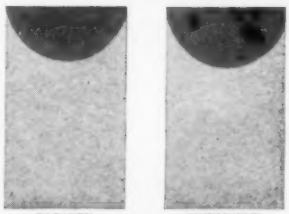

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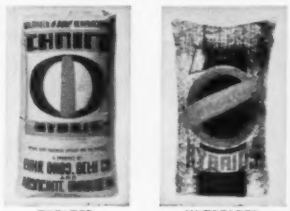

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FC-805 is at work now solving such diverse paper problems as these: For one manufacturer of "one-time" carbon papers, it prevents pinhole leaks in carbonizing tissue when heated carbon dope is applied. For another manufacturer, it solves a 70-year-old packaging problem of oily twine permeating the paper wrapping. Still a third found that greasy and oily machine parts can't destroy the neat, clean appearance of his package when it's protected by this paper size.

In other areas, 3M Brand Paper Chemical FC-805 works well, too . . . permits use of thinner-than-normal polycoating . . . prevents grease crawl and staining at seams and closures in multi-wall bags. Chances are, it can help solve your packaging problem, too. For more information, see the "profile" column to the right. Then send for the free booklet.

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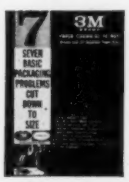
30# Bl. kraft, lightly beaten, Creased Test Treatment Level (wt. %) 0.5	21	14	21	21
15 pt. Semi-Bl. kraft board, Scored & Folded Test, Treatment Level (wt. %) 0.3	5	5	5	10

Since FC-805 achieves grease, oil and wax resistance without the formation of a continuous film, the porosity of paper and board to moisture vapor and other gases is not affected . . . nor will it have an adverse effect upon strength, provided a material such as urea is incorporated in the formulation. In fact, FC-805 will not affect, to any major degree, the color, flexibility, printability, glueability, or porosity of paper.



Free booklet on 3M Brand Paper Chemical FC-805. Send for our booklet on the subject, or write, describing your area of interest to 3M Chemical Division, Department KCA-51, St. Paul 6, Minnesota.

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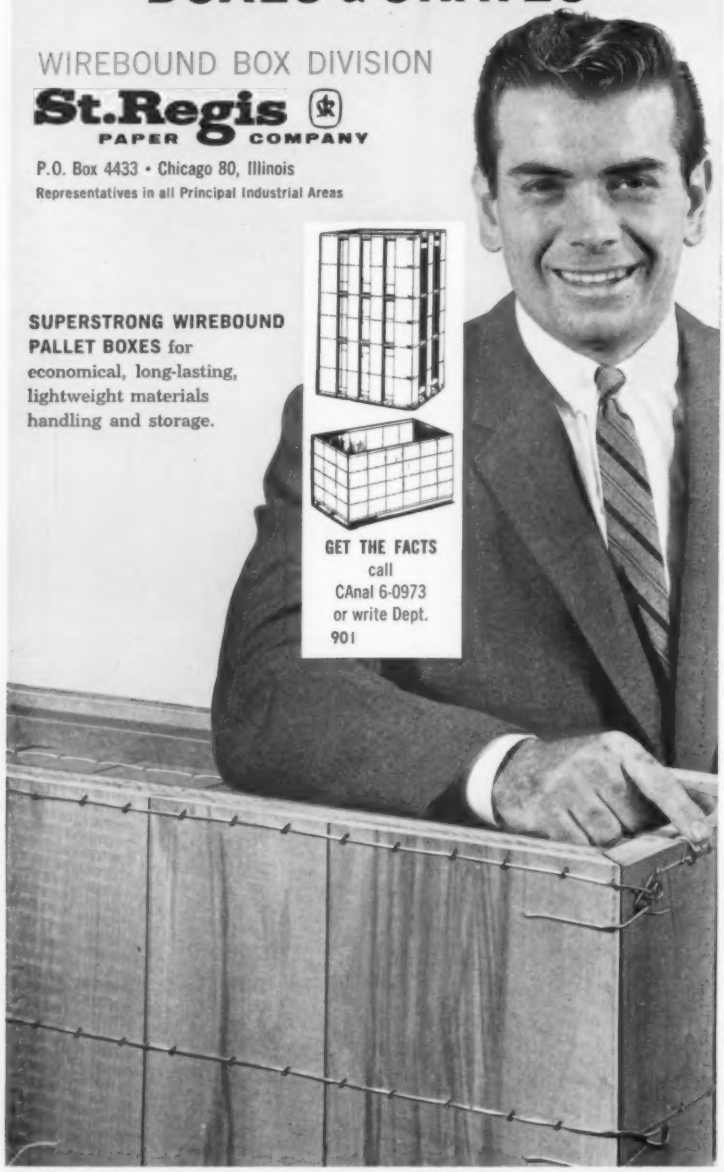

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Must Convert Machines

It is important to note that existing machines which use adhesives or solvents for paper or cellophane cannot be used directly for HDPE film. Conversion requires changes in the feed section, possibly the folders, and in the design and operation of the glue pots. Several machinery manufacturers are working on prototype machines to demonstrate proper machine design.

EASY-OPENING

HDPE film has low tear strength (15 gm./0.001-in. thickness) in the machine direction of the film. Moreover, this tear is unidirectional, i.e., the film tears in a straight line. By using perforations, tear strings, and tear tapes, packages overwrapped in the film can be opened easily without destroying the overwrap.

Attachments for each of these opening methods are available from the machinery manufacturers. In some cases, a notched tab is all that is needed to start the tear.

Packages made of HDPE film on the fin-seal, the horizontal-tube-forming, and the form-fill-seal machines need no tear tape. A notch or saw-tooth cut on the end of the package provides sufficient hand leverage to start the tear.

Acknowledgments

We wish to express our gratitude to the many manufacturers of packaging machinery whose cooperation and assistance made these developments possible.

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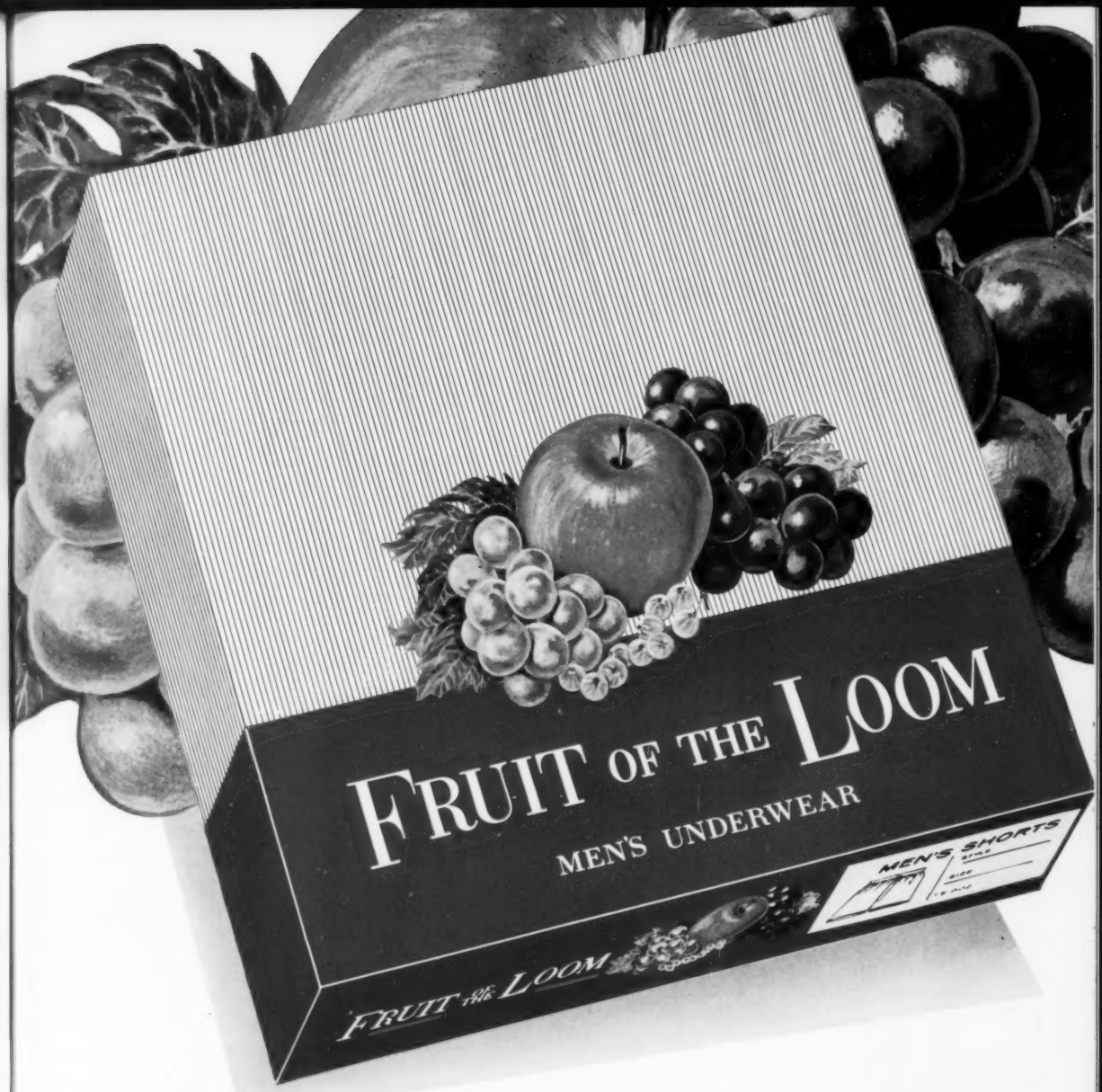

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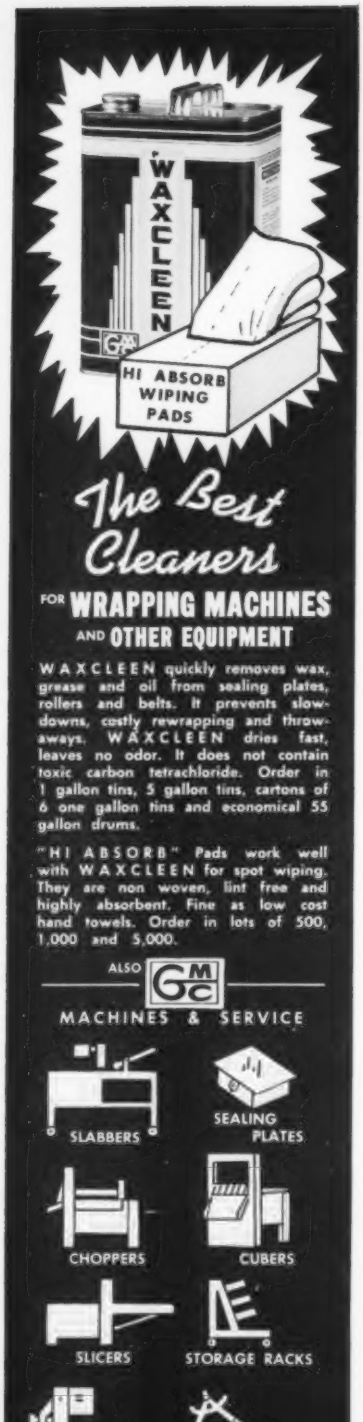
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Michigan State expands research, intensifies study of damage control

In response to interest about its announcement of six research projects, Michigan State University's school of packaging is already expanding its plans for the first of these projects. The six projects which the school is offering on a multi-sponsor basis include:

1. Control of damage in shipment.
2. The folding resistance of scored bending board as a factor in high-speed filling and cartoning operations.
3. Physical properties of importance in the use of flexible materials and combinations thereof on packaging machines.
4. Sealing of flexible materials at high machine speeds.
5. Use of water-vapor permeability rates in design for a definite shelf life.
6. Gas permeabilities as a factor in package shelf life.

Initial plans for Project No. 1 included three aspects of controlling physical damage to packaged merchandise and packages: (1) determining the adequacy of present assumptions about the characteristics of in-transit shocks by investigating methods of measuring shocks; (2) studying the fragility of articles prone to damage in shipment and developing adequate means of describing and measuring this fragility; and (3) examining properties of packaging materials and containers which make them effective in protecting against shock.

Enlarge Project Scope

Now the school of packaging is adding a fourth area to this project: expanding the analytic design method for cushioned packages so that packaging engineers may readily apply the method. MSU's researchers expect to get information aiding the experimental verification of the analytical design method for shock protective packages. In their phase of this work, they expect to use typical design problems their research sponsors encounter.

"It is our belief that the major

benefit to any sponsor of this program will accrue from this part of the endeavor," officials of the school of packaging assert. They point out that the application of cushioning material properties to actual packaging design problems has always been a difficult task. This is because experimental verification of the designs rarely takes place and gets reported even more rarely.

Much To Accomplish

Regardless of the significance of this fourth phase of the project, the school's researchers expect plenty of work on the first three phases.

The work of the first part of project No. 1 includes developing a practical shock recorder to include in packages; developing a sampling scheme in using shock recorders to be sure of covering all possible transport modes and environmental conditions with the least effort; and winning the cooperation of carriers and shippers in getting shock data in the field.

The second part of this project involves studying the shock factors which cause damage to merchandise—in relation to the merchandise involved. Plans include studies of damage to the contained product and damage which the container itself causes to the product.

Delve Into Fragility

From this work the researchers expect to draw generalizations about the fragility of items. Another aspect of the second part of the project is developing a rudimentary technique to approach fragility in the same way that designers approach static strength characteristics.

The third phase of MSU's "control of damage" project is developing static stress versus "g" curves for materials of varying densities and from a range of drop heights. Having these should end the trial-and-error designs of different cushions. The university already has apparatus with which to do this, and its researchers are now accumulating data.

Also they expect to get actual stress-strain data at rates corresponding to those occurring in package-damage-causing situations. Part of MSU's plans for this project include developing equipment and methods for these measurements.

Also as a phase of its analytic approach to cushion design, the research team expects to develop information on the long term static deformation, as well as knowledge of the permanent deformation of cushions under repeated dynamic loading.

Folding Carton Performance

Project No. 2 will explore the erratic performance of folding cartons on machines operating at high speeds. The school of packaging is now in the advanced stages of work on a device to measure the folding resistance of scored boards at operating speeds. This project also will develop information on the performance of scores of known resistance in typical cartoners.

This project will continue the development of the score testing device. This will reproduce machine bending conditions and permit improved measurement of folding resistance as a function of loading rate, scoring parameters, grain direction, board type and caliper, and moisture content.

Further, the project will also study the variability in folding resistance as a function of scoring parameters—using the device now under development. The project will also study the performance of cartons with scores of known folding resistance on filling machines operating at various speeds.

Study Flexible Materials

In Project No. 3 the researchers will explore physical properties of importance in the use of flexible materials (and combinations thereof) on packaging machines. Their proposal is to study all the physical properties conceivably related to material performance at rates of load application and folding encountered in use. They point out the probable inadequacy of existing methods and expect to develop new ones to determine these properties.

Work of this project: (1) studying forces involved in moving webs through typical wrapping machines—including forces which cutting and sealing develop; (2) developing techniques and methods to measure physical properties of materials—under the configuration of forces produced in packaging machines and at typical loading rates; and (3) looking for new ways of transporting and folding

How sponsors participate

MSU's school of packaging sees each of these projects as a multi-sponsor venture. The direct cost of each will be about $120,000 and each investigation will extend over four years. MSU has set the cost of an individual sponsorship at $3,000 a year payable in advance on an annual basis.

Sponsors may withdraw from participation at the end of any year. New participants may join at any time, but those entering after the first year will contribute to the cost of work already accomplished.

The school plans to report to sponsors every six months and to issue a final report at the conclusion of each project. There will be at least one seminar held exclusively for the sponsors on the application of the results of the project to practical packaging problems. MSU will hold the findings for sponsors until one year after finishing the work of any individual project.

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flexible materials to aid the use of materials which present methods of application make difficult.

Seek Out Sealing Methods

Project No. 4 will explore the sealing of flexible materials at high machine speeds. The MSU researchers think conventional methods put serious limitations on the development of high speed packaging because of the inability to produce effective seals at high rates of travel. They consider this project an exploratory search for new methods of creating seals.

The research team proposes the following work: (1) research into current methods of sealing flexible materials to be sure that no possibilities have been overlooked; (2) research into ultrasonic sealing; and (3) exploration of other sources of energy for sealing purposes.

Water Vapor Vs. Shelf Life

Project No. 5 will look into the use of water-vapor permeability rates in design for a definite shelf life. The researchers feel little work has been done to develop methods of designing packages for a given shelf life based on their permeability to water-vapor. To overcome this difficulty, they expect to develop permeability information about packaging materials.

To accomplish this, they expect to do three things: (1) measure the water-vapor permeabilities of selected materials at 10° temperature differentials from 0° to 120° F. and relative humidity differentials of 10 per cent from 10 to 100 per cent R.H.; (2) investigate methods of measuring and reporting the water-vapor permeability of seals and joints; and (3) develop methods of designing packages for a predetermined shelf life using analog computer techniques in evaluating these methods through storage tests.

Project No. 6 will study gas permeabilities as a factor in package shelf life. MSU's research team views this project as a fundamental investigation covering existing and potential methods of gas permeability measurements on component materials and complete packages.

Gas Permeability Study

They predict their study will cover: (1) accumulation of statistically reliable data on gas permeability of selected materials. They will do this with sweep gases to control pressure and relative humidity differentials between the inside and outside of a barrier; (2) study new techniques for measuring gas permeability—techniques approaching conditions of use; (3) study gas transfer mechanisms through joints and seams in barriers, and develop methods for measuring and reporting joint effects in barriers; and (4) do a feasibility study of design methods for packages where contents are vulnerable to spoilage through oxidation or anaerobic respiration.

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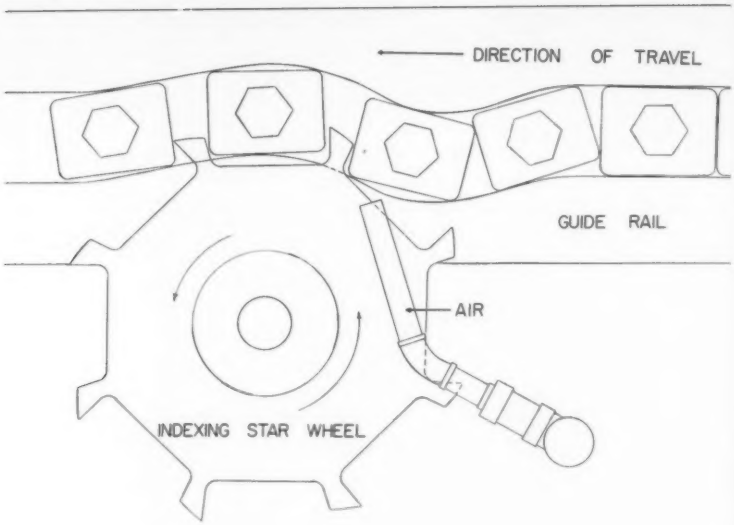


1 AIR BLAST, 10 lb./sq. in., directed at bottle, gives it cushion of air to ride on. This reduces friction between bottles on curve; thus they pivot more freely and space out so that star wheel point can enter.

Air jet stops bottle jams

Blast of air (at a pressure of 10 pounds per square inch) eliminates problem of getting rectangular glass bottles into pockets of indexing star wheel which feeds labeler—and equipment runs at 20% above manufacturer's rated speed.

By Robert E. Southworth
Head of Mechanical Packaging
John H. Breck, Inc.
Springfield, Massachusetts

During recent months, we encountered a problem—rectangular glass bottles jamming at the point of feed into an automatic labeler. About 5 per cent of the bottles hesitated momentarily when going around a curve in the conveyor guide rails.

This hesitation caused the indexing star wheel to strike the bottle and stop the machine. The function of the curve is to cause a partial separation between the advancing bottles, thus allowing the points of the indexing star wheel to enter the spaces between the containers feeding into the machine.

The time lost by these frequent stoppages was costing our company up to $150 a day in labor and overhead costs alone. Not only did just 5 per cent of the containers cause the trouble, but the absence of any definite behavior pattern made it difficult to discover any specific fault.

Hard To Index

We tried everything without much luck. We carefully inspected the bottles that caused the machine to stop but found them within specifications. Then we ran these same bottles through the machine, and most of them went through without a bit of trouble!

Rectangular bottles are difficult to index through a packaging line because each one presents a solid line of glass on the infeed conveyor, and yet these bottles require separation in some manner to let the points of the indexing star wheel enter between bottles. The simplest method is to run the bottles around a curve in the guide rails of the infeed conveyor. This travel effects a slight separation between bottles on the convex side of the curvature. Two bottles in the curved section thus pivot on their corners as shown in Fig. 1.

This is the theoretical result, but it did not work satisfactorily for us. Incidentally, with round bottles there is no comparable problem

because there is always enough space between them on an infeed line to permit the points of the indexing star wheel to enter between bottles. Thus, you may use a straight intake feed.

Wanted "Easy" Method

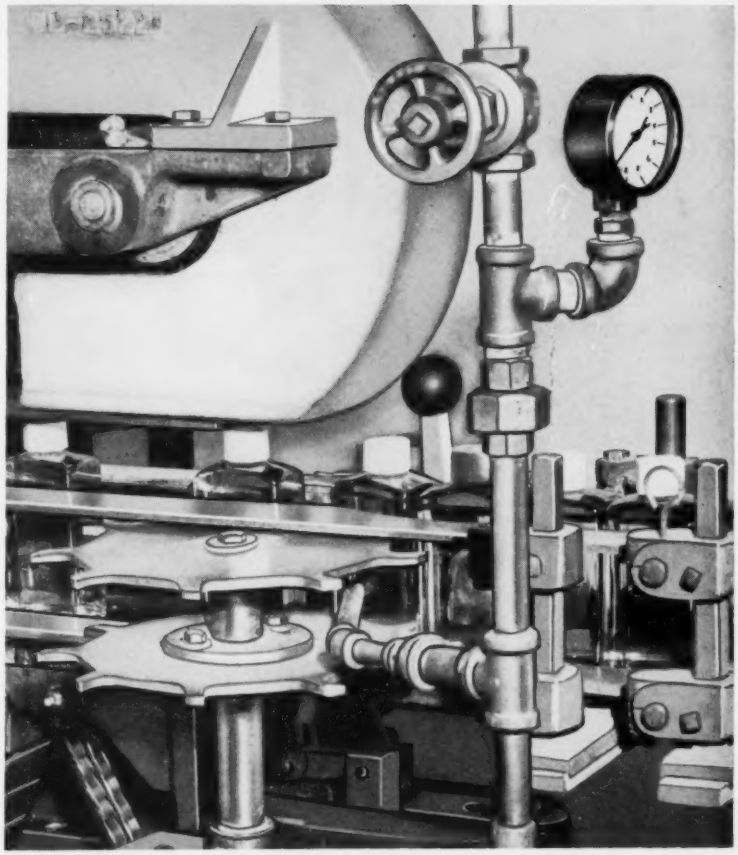
Many ideas came forward during our effort to remedy the trouble. One was to make a major machine design change and install a helical intake feed. We felt this would eliminate the problem, but the cost of doing it seemed excessive. Since 95 per cent of the containers were feeding without trouble, we felt there must be an easier, less expensive way to solve the problem.

We called in representatives of the machine manufacturer, Pneumatic Scale Corporation, Ltd., and with them, we rechecked everything about the labeler. We reviewed our bottle specifications to see if any pattern of trouble was associated with certain bottle molds. However, we found nothing. Next we tried bottles with a slip coating. Also, we put Teflon and silicone lubrication on the curved areas of the guide rails. We reduced our machine speed and checked the machine setting.

All these tests showed us that slip coatings were giving improved performance, but these materials could not stand the constant abrasion (from the passage of the bottles) for any length of time. We had been running the machine at 20 per cent over the manufacturer's rated capacity, so we cut our machine speed 30 per cent. This improved the situation but did not eliminate the trouble. We then made slight alterations on the guide rails and indexing star wheel, but nothing we did was satisfactory.

Two Problems, Not One

Now we realized that we faced not one but two problems: (1) that of friction between the leading bottle and the curve of the conveyor guide rails, and (2) the friction between a leading bottle and the one following it in the curved section of the guide rails. This friction hindered the free pivoting action of bottles.



2 LOCATION OF AIR JET on labeler. Note method of installing jet. Pressure gauge is very important—it insures same setting after each changeover to different bottle size.

At this point, the Pneumatic Scale people suggested directing a blast of air at the side of each container just as it came around the curve. This would give the bottles a cushion of air to ride on, almost eliminating the friction between the leading bottle and the guide rail. The blast of air is directed slightly forward, pushing the bottle into the pocket of the indexing star wheel and reducing the friction between two bottles on the curve.

The air blast at 10 lb./sq. in. pressure eliminated the problem. Fig. 2 shows the nozzle arrangement with the pressure gauge. Reason for the pressure gauge is to insure the same setting after every changeover for different bottle sizes.

We are still running the labeler at 20 per cent above the manufacturer's rated speed, thanks to the assistance of the machine builder, our own personnel, and the aid of air at 10 lb./sq. in. *(End)*

Robert E. Southworth is a graduate of Western New England College with a B.B.A. degree in engineering. Since joining Breck in 1949, he has been a mechanic operator and production service man prior to becoming head of mechanical packaging.

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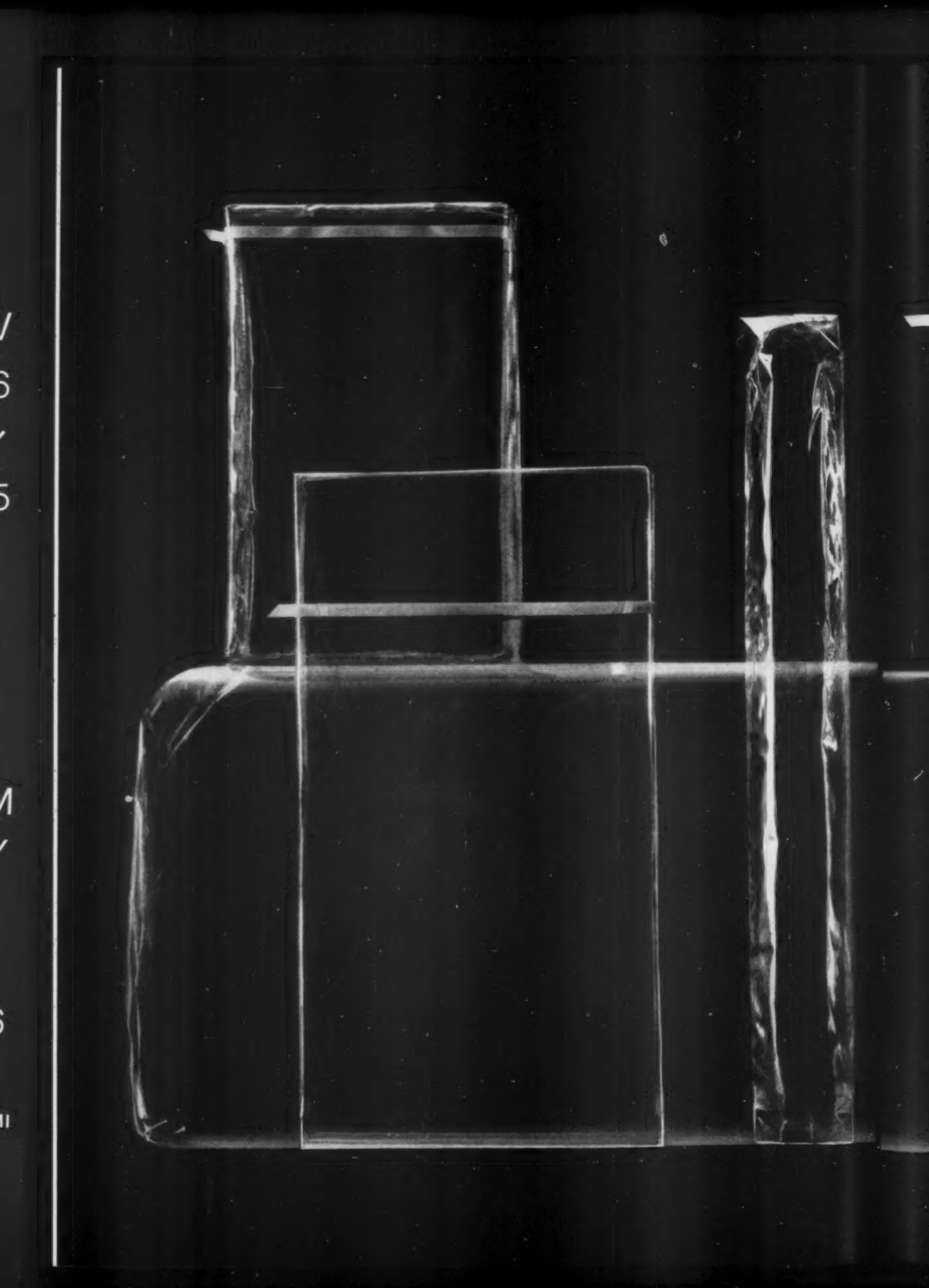

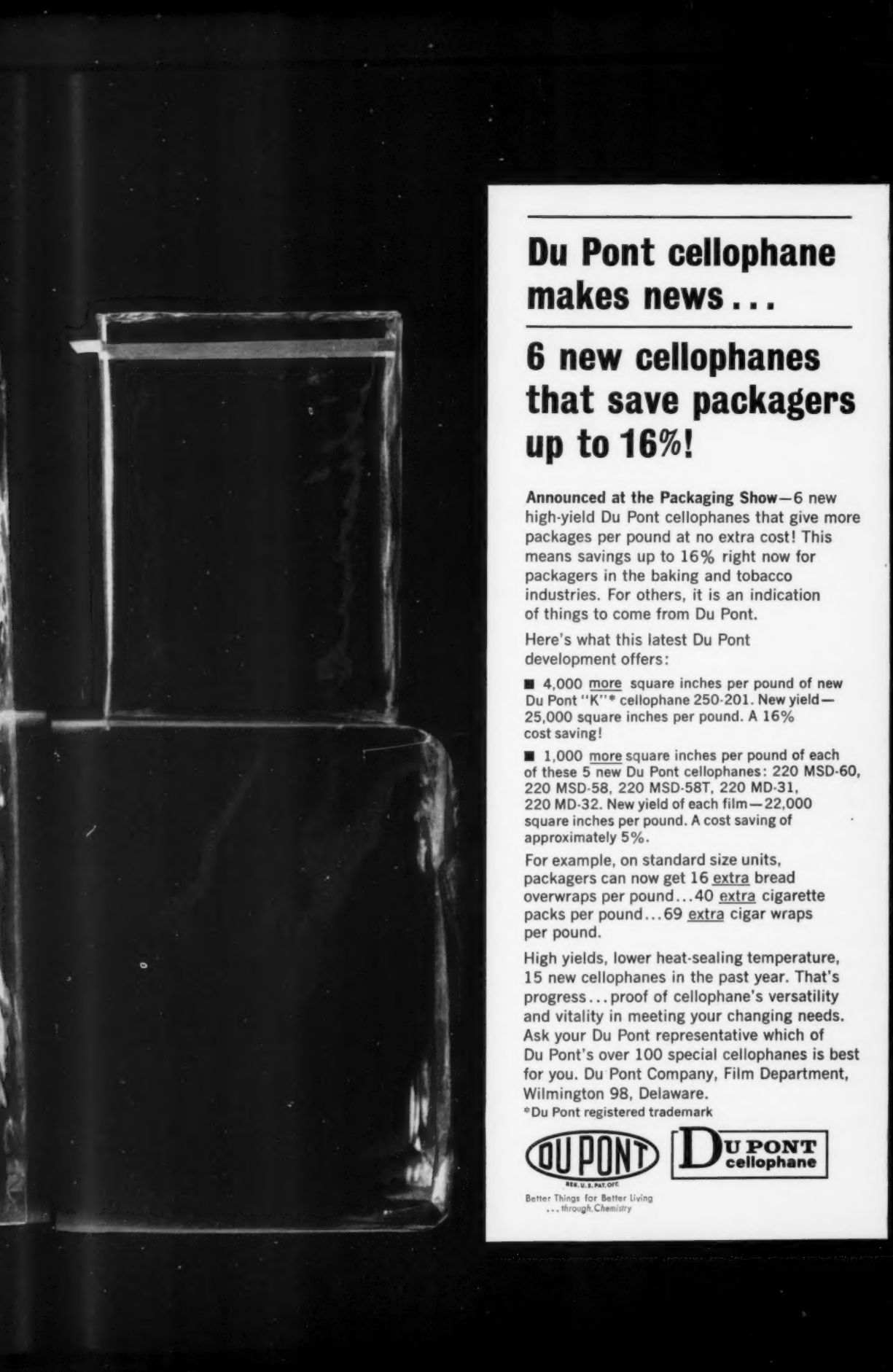

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Don't let temperature get out of control

The whole thermal system—not just one or two of its four components—keeps the temperature of sealing equipment within prescribed limits.

By Robert G. House
Chief Engineer
Fenwal Incorporated
Ashland, Massachusetts

"Temperature control" to the packager or machine designer is the ability of equipment to maintain temperature within prescribed limits. It is not exclusively concerned with the controller, but with that plus many other devices: heaters, platens, and insulation, for example. Getting the requisite temperature control depends on each of these elements. In short, the problem is not just a function of any specific device, but of a total "thermal system."

All this is no great revelation to packaging engineers, but too often they overlook it. For example: A film manufacturer determines that a narrow temperature bandwidth is optimum for sealing its material. Yet a machine, designed and built by a leading manufacturer specifically for this film, has a measured variation of 140°F. over the sealing platen.

Packagers and machine designers must approach the problem from differing viewpoints. The former often adapt or modify existing equipment and thus have limited opportunity to do much to its original thermal system. The latter go at it from the fundamentals.

In either case, the same basic principles apply. We shall review

What to know about controlling temperature:

- Required **accuracy** depends on packaging material . . .
- Every operating thermal system has a **gradient** at all times—and allowances must be made for it . . .
- **Thermal lag**—the delay in the distribution of heat through the system—is an enemy of accurate control . . .
- **Correct relative placement** of components is essential . . .
- **Heat balance**—the relationship between heat-source capacity and heat requirements in a given system—is necessary for accurate control in an **on-off** system . . .
- The **controller** must have certain things—including proper temperature range, sufficient sensitivity, and good rate of response.

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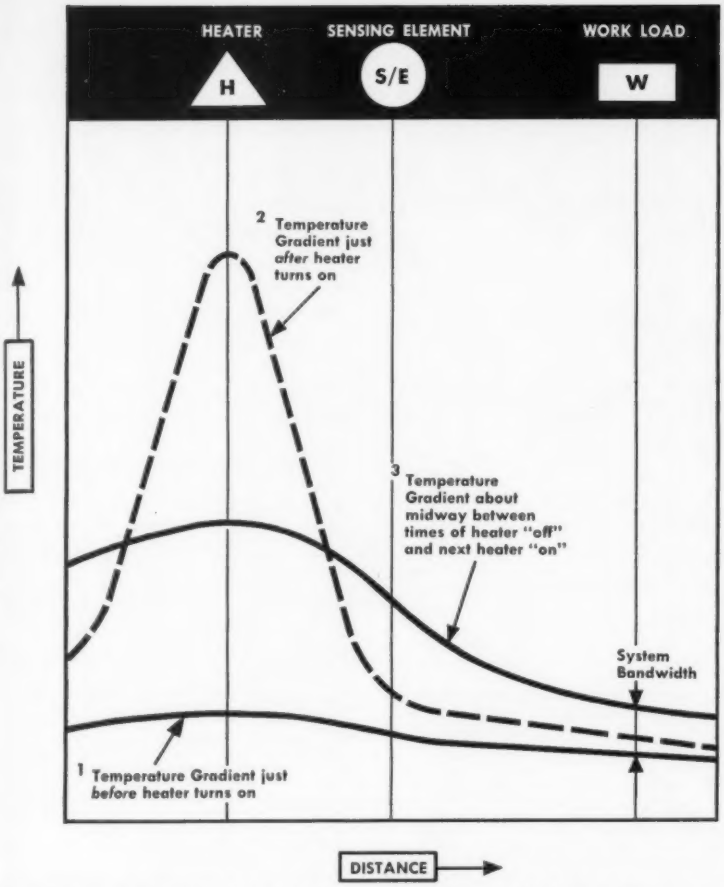


1 **THERMAL GRADIENTS** before, during, after heater is actuated. Gradient changes continuously as system cycles. "Work" is farthest from heater, has least temperature change.

them in this article with suggestions for their application. Simply relating the principles to an existing piece of machinery often aids a packager in improving the machine's performance. Furthermore, in the initial design of the equipment, it costs no more (and often less) to have an effective thermal system than it does to have a poor one.

THE THERMAL SYSTEM

There are four elements in a thermal system, each contributing to the control outcome.

1—Packaging Material And Rate

Various packaging materials have different temperature requirements. For example, foil radiates more heat than waxed paper and necessitates faster system response. Polyethylene, with its comparatively narrow temperature tolerances, also requires faster response.

Also, the packaging rate is important. To cite extremes, a machine processing one package per minute generally allows the package considerably more dwell time at the sealing point than one which handles hundreds per minute. In the first case, a relatively slow response is required from the system; in the second, fast response is essential.

In certain circumstances the package or rate may have additional influences. Our point is that any consideration of thermal system design starts with full knowledge of the package, its material, and the package rate.

2—Heat Source

The basic question is "how much?" Excessive heat is not only wasteful but can be damaging; insufficient heat forces slower production rates or gives poor seals. Thus proper heater size is important and it can be readily calculated.

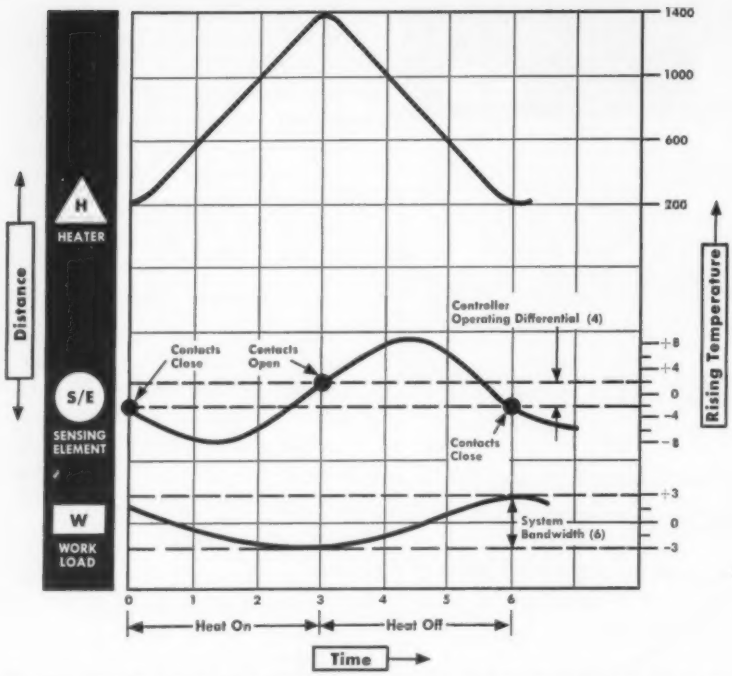
3—Heat-Transfer Medium

In package sealing, this is usually a function of the sealing jaws or platen. Heavy thick metal jaws will need more heat than thinner ones though they retain heat longer. In general, the thicker the jaws, the slower the response of the system to temperature change. Thus, the engineer must balance between longer life and ruggedness of heavy platens, and the potentially more precise control available from lighter ones.

In many cases, adhesives need preheating. One approach involves a large adhesive reservoir, from which small increments of adhesive are removed over relatively long operating periods.

In such cases, the temperature of the reservoir—and adhesive—can be brought to its appropriate point and conveniently held there within narrow limits without adding large quantities of heat. On the other hand, if the reservoir is small, or if large amounts of adhesive are removed, the temperature

Robert G. House is a graduate of Cornell University with a B.M.E. degree. Joining Fenwal in 1951, Mr. House was chief designer, senior project engineer, chief mechanical engineer, and chief technical design engineer prior to becoming chief engineer. He is a member of Pi Tau Sigma, Instrument Society of America, American Society of Mechanical Engineers, and the Framingham Engineers' Club.



2 TIME-TEMPERATURE RELATIONSHIP at heat source, sensing element, work area in simple thermal system. Note "lag" between maximum temperature at heater, maximum at work.

of the reservoir can vary widely. In the first case, you can design in terms of a relatively slow thermal system; in the second, a fast system with quick response is needed.

4—Temperature Controller

A precision controller improves a poor thermal system and makes a good one even better. However, with the variety and broad price ranges of controllers, the engineer should select one that gives him the speed of response and control sensitivity he needs for his total system.

ACCURACY

One basic question interests packagers: Is the temperature control accurate enough? Control requirements are more stringent for some packaging materials than others; certain types of equipment require more precise control than others.

Waxed paper has broader sealing tolerances than the new plastic films; a flexible bread package is more difficult to handle than a rigid container; high-speed machinery often has less margin for error than slow-speed.

Nevertheless, good control *is* possible with standard instruments. But unless the system is designed as an entity, there is little assurance of your having the over-all accuracy you expect. Turning to basic factors that affect temperature control, we may examine how packagers and machine designers apply them to specific problems.

GRADIENTS

If you measure the temperatures in a packaging machine at a given instant, starting at the heater and progressing outwards to the edge of the sealing unit, you find few, if any, places along the line of measurement where the temperatures are exactly the same. Rather you find that the temperature drops progressively as you move farther away from the heat source. This *gradual drop* existing in a system is the *thermal gradient*.

Every operating thermal system has a gradient at all times. Temperature changes occur continuously because of heater cycling and heat losses, but these changes are not transmitted immediately through the remainder of the system. As a result, there is always a temperature differential or gradient between points, with the highest temperature being at the heat source and the lowest at the outer edges of the system. Some gradient is essential since heat cannot flow unless there are areas of lower temperature into which it can move.

How Gradient Changes

Steepness of the thermal gradient changes continuously as the system cycles. It increases as the heater warms up and decreases as the heater cools. The gradient increases as the temperature at the work drops and as heat loss from the system increases. (See Fig. 1.)

This illustrates another important point about gradients: The bandwidth decreases as you get progressively farther away from the heat source. Thus, though the heater temperature may vary as much as 1,000 or 1,200°F. during its cycle, the total change in temperature at the work can be a few degrees or less.

The reason is that the quantity of heat released by the heater is absorbed by the entire system. Thus, by the time it reaches the work, the heat wave is sufficiently damped to produce a relatively small temperature rise.

Making Allowances

Allow for gradient when measuring and controlling temperatures:

Because the temperature varies along the gradient, you should measure temperature as close as possible to the area you want controlled, such as the sealing point or the adhesive reservoir. If you place a thermometer between the work and the heater, the reading usually is higher than the temperature in the work area. If you measure the temperature at a low point in the gradient (say, near

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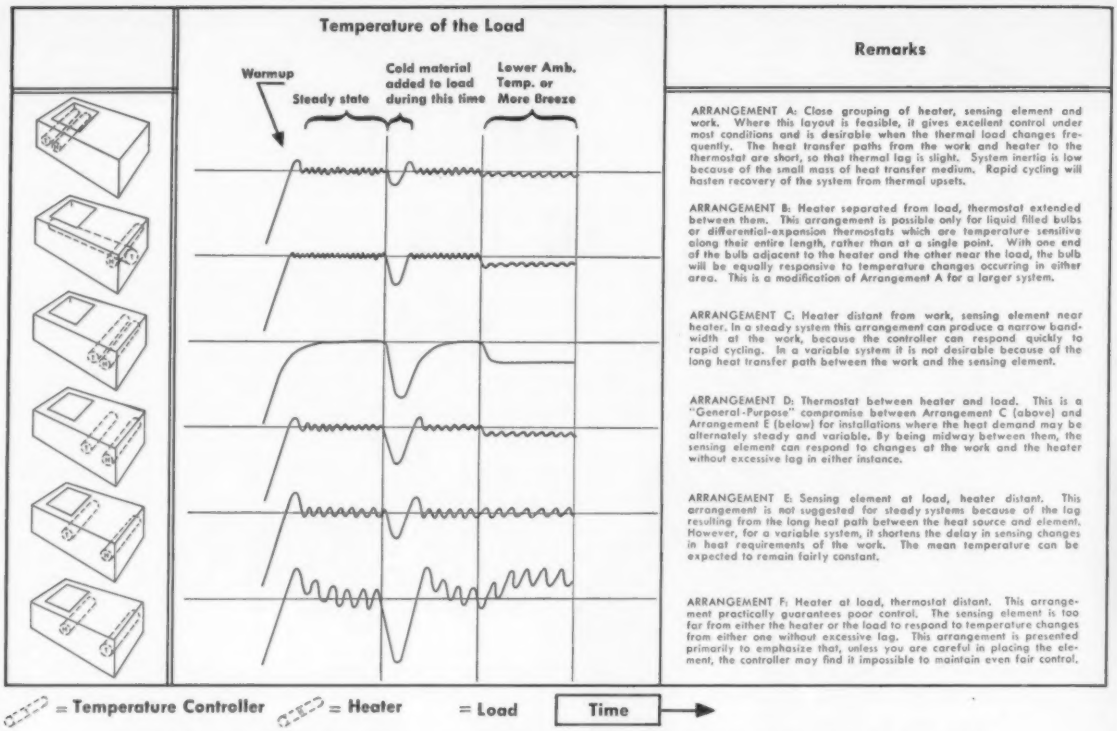

Temperature of the Load
Warmup
Steady state
Cold material added to load during this time
Lower Amb. Temp. or More Breeze
Remarks
ARRANGEMENT A: Close grouping of heater, sensing element and work. Where this layout is feasible, it gives excellent control under most conditions and is desirable when the thermal load changes frequently. The heat transfer paths from the work and heater to the thermostat are short, so that thermal lag is slight. System inertia is low because of the small mass of heat transfer medium. Rapid cycling will hasten recovery of the system from thermal upsets.
ARRANGEMENT B: Heater separated from load, thermostat extended between them. This arrangement is possible only for liquid filled bulbs or differential-expansion thermostats which are temperature sensitive along their entire length, rather than at a single point. With one end of the bulb adjacent to the heater and the other near the load, the bulb will be equally responsive to temperature changes occurring in either area. This is a modification of Arrangement A for a larger system.
ARRANGEMENT C: Heater distant from work, sensing element near heater. In a steady system this arrangement can produce a narrow bandwidth at the work, because the controller can respond quickly to rapid cycling. In a variable system it is not desirable because of the long heat transfer path between the work and the sensing element.
ARRANGEMENT D: Thermostat between heater and load. This is a "General-Purpose" compromise between Arrangement C (above) and Arrangement E (below) for installations where the heat demand may be alternately steady and variable. By being midway between them, the sensing element can respond to changes at the work and the heater without excessive lag in either instance.
ARRANGEMENT E: Sensing element at load, heater distant. This arrangement is not suggested for steady systems because of the lag resulting from the long heat path between the heat source and element. However, for a variable system, it shortens the delay in sensing changes in heat requirements of the work. The mean temperature can be expected to remain fairly constant.
ARRANGEMENT F: Heater at load, thermostat distant. This arrangement practically guarantees poor control. The sensing element is too far from either the heater or the load to respond to temperature changes from either one without excessive lag. This arrangement is presented primarily to emphasize that, unless you are careful in placing the element, the controller may find it impossible to maintain even fair control.
= Temperature Controller
= Heater
= Load
Time

3 EFFECT OF BULK LOCATIONS on temperature control of predominantly static or dynamic systems. Applies generally to all heat-transfer media, but some additional considerations apply to liquid or gas systems.

the outer surface of the system), it may be lower than the temperature at the work area.

Also, since the slope of the gradient continuously changes during the heating cycle, a sensitive indicator follows the change. You may need an average of the maximum and minimum readings for a representative temperature.

Adjust For Location

By the same reasoning, you must adjust the set point of the controller according to its relative location. The closer to the heater you get, the larger the offset necessary to keep from shutting off the heater too soon.

For example, to control the work at 300°F. when the sensing element is between the work—or sealing surface—and the heater, you may have to set the controller at 305° or 310°F. to let the heater reach a sufficiently high temperature to produce a useful temperature rise at the work area.

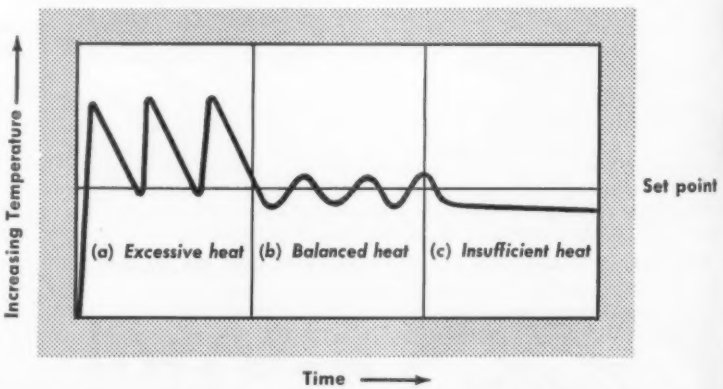
Three Ways To Cut

Although thermal gradients are inevitable and necessary, excessive gradients are troublesome. You have three ways of reducing these gradients:

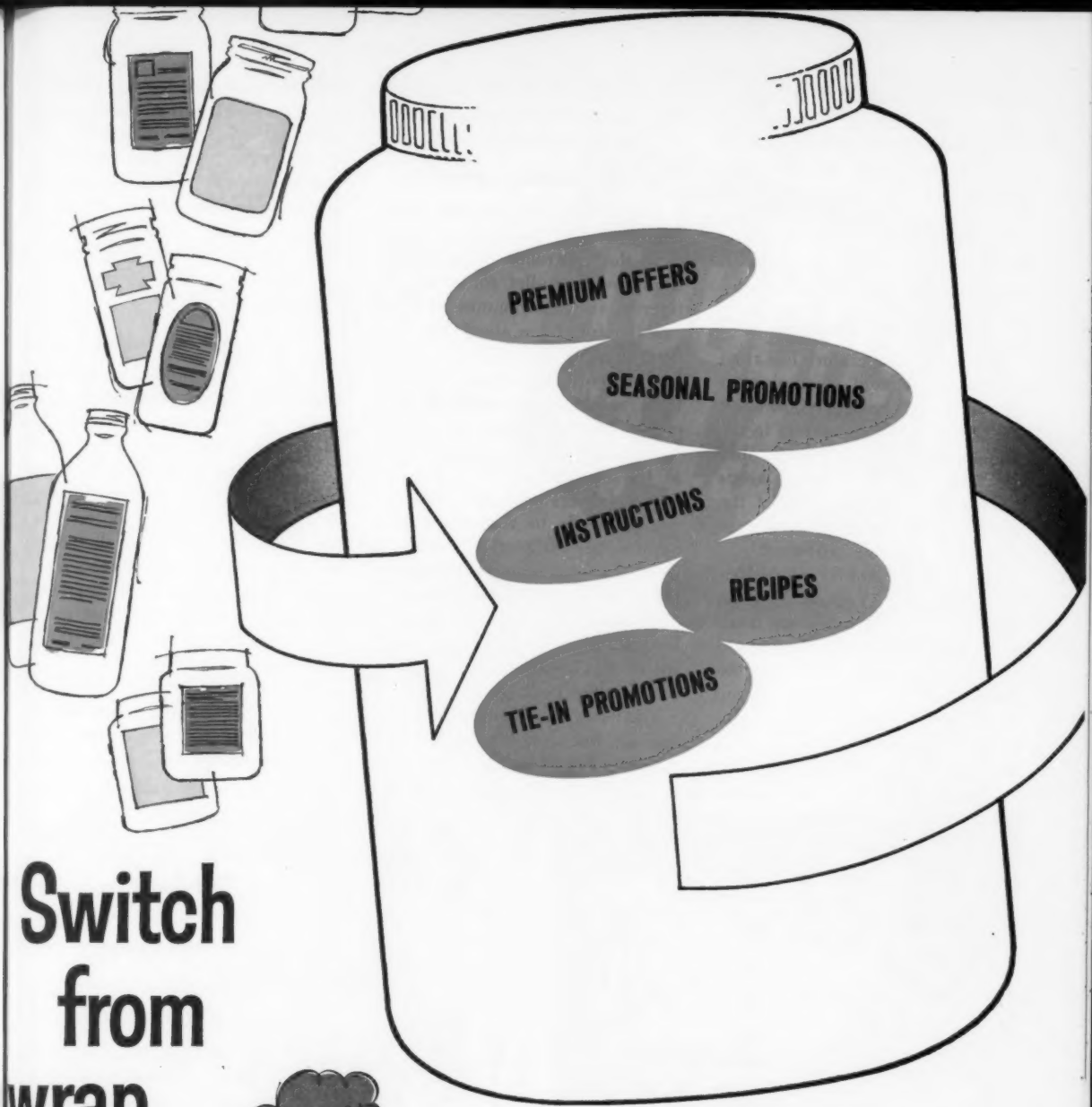
1. Balancing heater capacity against heat demand. Gradients are influenced by the amount of heat input and of heat losses. Too large an input increases gradient and temperature bandwidth.
2. Properly setting and locating the sensing element to control the duration of the heat cycle.
3. Insulating the system to reduce heat loss.

THERMAL LAG

Fig. 2 illustrates a simple thermal system in which the temperature is measured simultaneously at the heat source, sensing element, and



4 HEAT-BALANCE EFFECT on temperature fluctuations where (a) heater is too large, (b) heater is right capacity—a balanced system, (c) heater is too small. For best control, heat should be on 50 per cent of time when thermal system is at desired operating temperature.



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work area. At Time 0 the temperature at the sensing element has fallen to the level which causes it to turn the heater on. The temperature at the heater rises immediately and sharply. However, the sensing element and the work, being some distance from the heater, do not feel the heat until later.

How Heat Changes

When the temperature has risen sufficiently around the element (Time 3), the controller turns off the heater. The temperature in the heater itself drops quickly, but the heat already released keeps flowing to the cooler parts of the system so that their temperature rises even with the heater off.

The sealing area may reach maximum temperature about the same time the heater reaches its minimum. This delay in the distribution of heat through the system is the *thermal lag*. It is present to some extent in every system. It is influenced by the distance between the heat source and the work, and the resistance to heat flow and the heat capacity of the sealing platen or other heat-transfer medium.

Lag's Adverse Effect

Thermal lag is the enemy of accurate control because it handicaps the controller. It withholds from the controller for a certain interval (several minutes in some cases) information about temperature changes in the system. This lag prevents the sensing element from sensing heat demand soon enough to deliver heat as needed.

It also delays the arrival of heat at the element so long that the heater delivers more heat than the system needs to recover from a temperature drop. The result in the first case is temperature undershoot; in the second case, temperature overshoot. Undershoot may lead to an imperfect seal; overshoot, if excessive, may burn or damage the package.

You never entirely eliminate thermal lag, but close control demands reducing lag as much as practical, and compensating for the remainder. Using materials and techniques to speed up heat distribution reduces thermal lag. You can compensate for the remaining lag by selecting a controller of sufficiently fast response and placing its sensing element where it can quickly sense important temperature changes.

May Be Misleading

Thermal lag produces misleading information for evaluating controller performance in a rapidly changing system. In certain systems, the lag is large enough so that, when the sensing element is between the heat source and the work area, the controller calls for heat because of reduced temperature in its area, while the temperature at the work is just starting to rise as a result of the previous heating cycle.

This effect seems even more pronounced if the controller has a fast response, and the temperature indicator at the work has a large

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inherent lag, as in many mercury-in-glass thermometers.

COMPONENT LOCATION

A controller performs no better than the system permits. Thermal lag is one of the major factors in handicapping the controller. Proper choice of heat-transfer material reduces lag. Wisely matching the controller with the application and correctly placing the components in the system further reduces lag.

Correct placement is essential because, starting with the same heat source, controller, and thermal load (including total heat requirements of the work, heat-transfer medium, and heat loss), you get widely different control accuracies depending on the relative locations of these components.

This Would Be Ideal

If the heat source, sensing element, and work could always fit into a compact area, there would be little problem with control. The short heat path from the heater would enable the sensing element to respond quickly to temperature increases at the heater, cycle frequently, and minimize overshoot.

At the same time, the element is in a position to respond quickly to changes in heat demand at the work and to minimize undershoot. Also, the small mass of the transfer medium would reduce inertia and thermal lag throughout the system. The result would be a nearly ideal system with a very narrow bandwidth and little change in mean work temperature.

Ideal Seldom Workable

In the majority of cases, this intimate grouping of system elements is impractical—and particularly so in remodeling an existing packaging machine. The engineer must work within limits prescribed by the equipment and the environment in which it will be used. A problem arises: where to put the sensing element?

Moving it away from either the heater or load affects control. There is no single answer to the problem. The designer's problem is to find the best compromise for his thermal system, bearing in mind the material and package for which this machine is to be used.

Two Key Considerations

Before discussing recommendations for specific systems, we might consider first the general consequences of sensing element placement which apply to all systems.

1. Putting it adjacent to the heater produces a narrow bandwidth at the load, provided the heat demand at the work remains fairly constant. Thermal lag to the element is small. It therefore senses the temperature change rapidly and cycles the heater frequently. This sharply reduces the possibility of overshoot and keeps the bandwidth small. A control and heater affixed to a sealing platen may satisfy this requirement, other things being equal.

2. Moving the sensing element closer to the work area lets it re-

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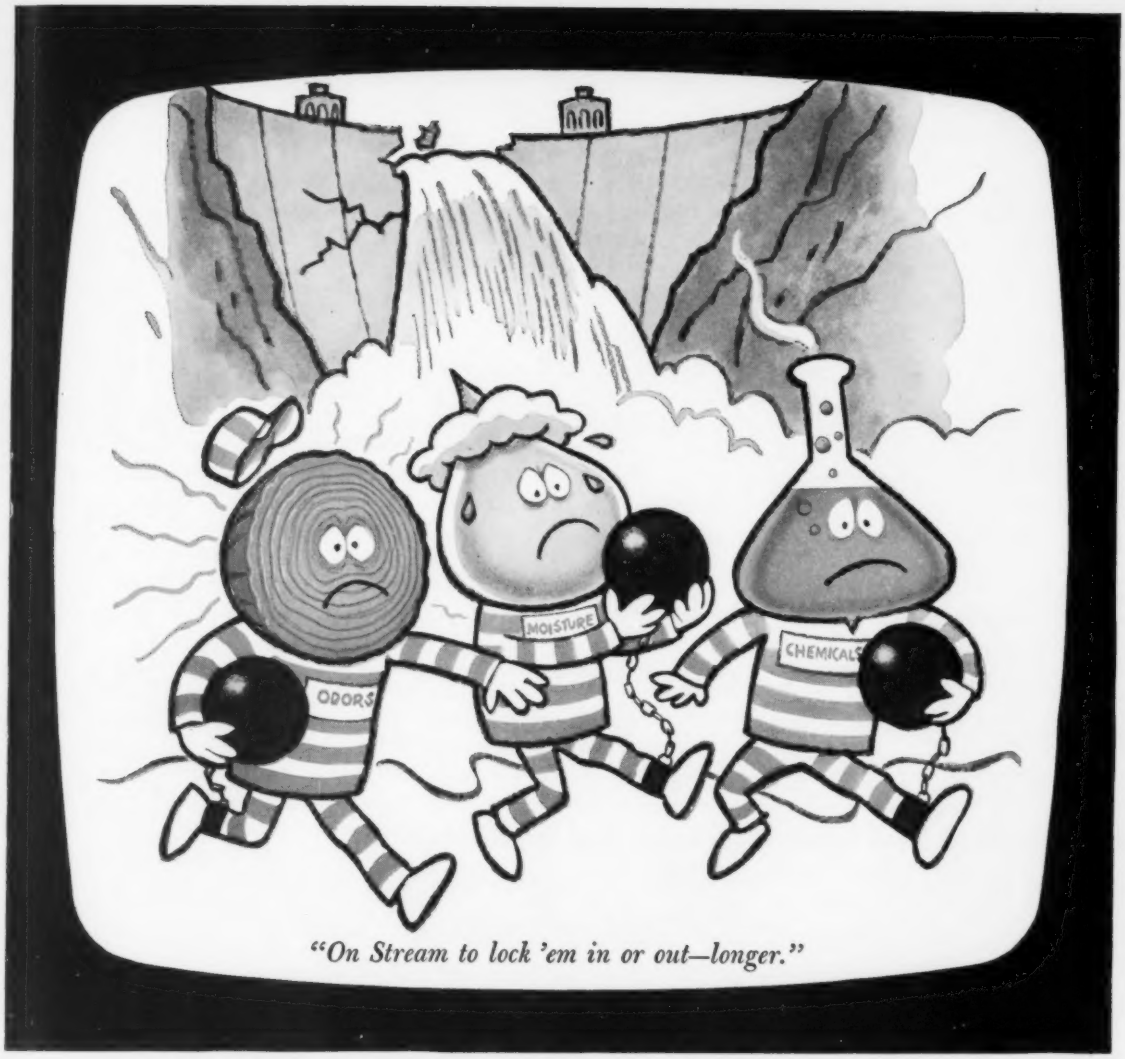

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spond more rapidly to heat demand of the work. This is particularly necessary for close control of systems where the heat demand varies a lot at frequent intervals. When the element is near the work, the mean temperature stays at a constant level, but increased thermal lag from the heater and a consequent increase in bandwidth offset this advantage.

Select Desired Accuracy

Thus, when the work and the heat source are separated, placement of the sensing element involves compromising the advantages of smallest bandwidth and constant mean temperature at the work area. You cannot attain both at the same time. You must decide which of the two types of accuracy is more important for your system.

Precision performance of *on-off* controls requires frequent cycling of the heat source. However, systems without an *on-off* control mode do not need frequent cycling. Rapid cycling produces a series of short bursts of heat which approximate a steady heat input at the load.

Infrequent cycling, on the other hand, causes prolonged heating intervals in which large quantities of heat enter the system. This results in wide variation in thermal gradient during the operating cycle and undesirably increases the system bandwidth.

Optimum Cycling

Although rapid cycling is desirable (it reduces bandwidth), it has practical limits. Optimum cycling frequency is one that produces the system bandwidth you want without excessive wear on cycling components.

Moving the sensing element away from the heat source reduces cycling frequency. If this is not practical, you reduce it by increasing the thermal lag to the element by artificial means, such as insulating the element with a strip of asbestos, a heat shield, or a reflecting strip.

A Rule Of Thumb

There are preferred component locations for various thermal systems. Although thermal systems are not purely steady or variable in practice, they usually are predominantly one or the other. For such systems, this rule of thumb is helpful: *When the heat demand is relatively steady, the sensing element should be closer to the heat source; when the demand is largely variable, it should be nearer the work area.*

The characteristics of any one system, such as complicated thermal gradients or variable heat losses, may dictate your trying several sensing element locations before deciding on the best one. However, the rule of thumb is a good starting point.

The guiding principle is that the element should be closest to that area where a temperature change must be sensed with minimum thermal lag. Fig. 3 shows in detail the effect of various bulb locations on the control of predominantly static or dynamic systems. This applies generally to all heat-transfer media, but some additional considerations apply to liquid and gas systems.

Pairing Of Controllers

Paired controllers can reduce lag in large systems. In such a system, with a thermal lag too great for good control from a single sensing element, you can often get a good averaging effect by using a pair of thermostats wired in series with the heat source. One thermostat can be adjacent to the heater to act as a high-temperature cutoff. This prevents excessive heat input. The second thermostat, installed near the work, responds quickly to temperature variation in that area.

Positioning Thermostats

You can determine empirically the control point for each thermostat to include heat gradient, rate of heat loss, and frequency of changes in thermal demand, as well as other factors peculiar to the

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A. Filled bag being put into infeed of heat sealer
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C. Bag activating switch that activates placement
D. Bag entering heat sealer

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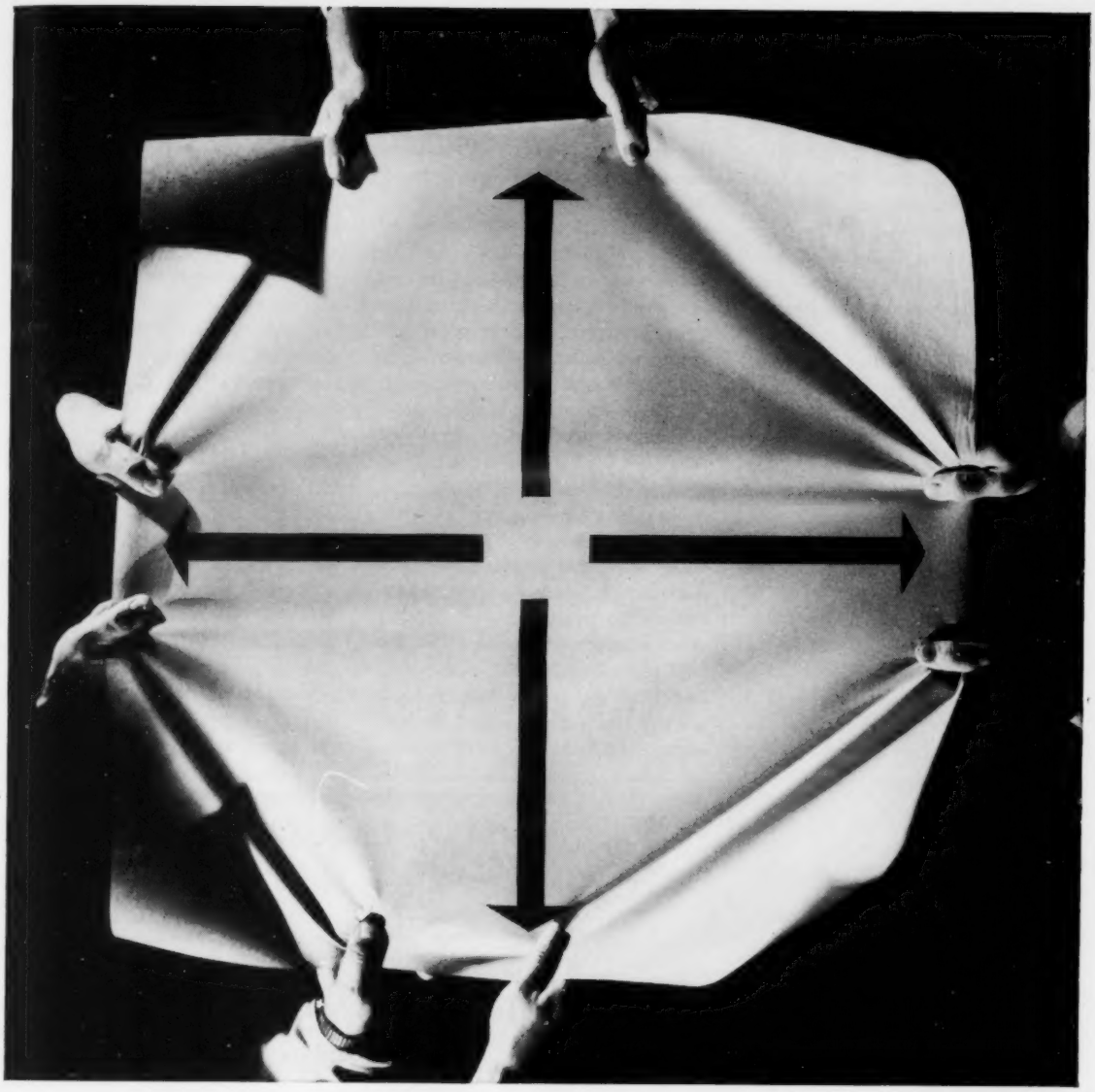

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individual system. Generally, you should set the thermostat near the working area at about the control temperature you want.

You set the other thermostat near the heater at some higher temperature. This provides sufficient heat to meet maximum demand and yet prevents the heater from causing overshoot in the work area.

Another approach is to use two heaters, one which remains *on* continuously and supplies most of the heat demand. The other, a smaller heater, is controlled by the thermostat.

HEATER SELECTION

You cannot accurately control an *on-off* system without proper heat balance. This refers to the relationship between the capacity of the heat source and the heat requirements in a given system. For best control, the heat should be *on* 50 per cent of the time when the system is at the desired operating temperature.

The three curves in Fig. 4 show the effect of heat balance on temperature control. Curve A shows what happens when the heat source is too large. The temperature of the system rises sharply each time the heat goes *on*, causing repeated thermal overshoot with each cycle.

Curve B illustrates the control in a balanced system—heat *on* 50 per cent of the time.

The rates of heating and cooling are about equal, and the deviations from the control point are small and equal. Such a system is flexible enough to maintain good control even if the heat demand increases or decreases substantially.

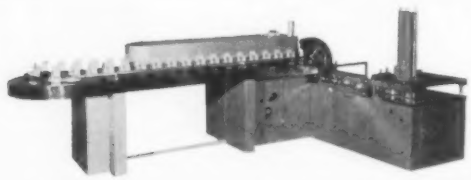
Making Allowances

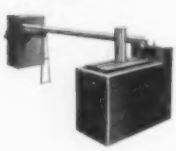
Curve C shows what happens when the steady heat demand exceeds the heater capacity. Even though the heater is *on* continuously, the system never reaches control temperature. Even if the heat is *on* 50 per cent of the time under normal circumstances, more than double this amount of heat is necessary if low voltage combines with cool breezes or fans—or with the air conditioning so many plants now use. You must allow for this when selecting heaters to get an actual *on* time of 50 per cent.

It is seldom possible to have perfect heat balance in normal packaging operations. However, whenever the heat source is *on* more than 60 per cent of the time, you should increase the heater rating. If the heater is *on* less than 40 per cent of the time, the rating is too large and you should decrease it.

SIZING THE HEAT SOURCE

Two factors affect the required heater rating: (1) the amount of heat needed to bring the system to operating temperature from a cold start within a specified time, and (2) the amount of heat required to satisfy the demand of the system (including losses) during normal operation. Usually the larger of the two determines the minimum rating. However, when





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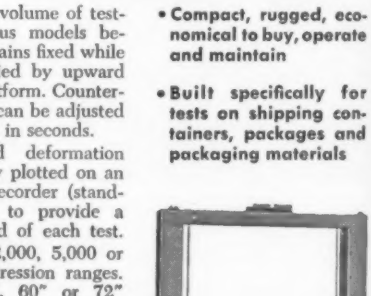

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the warmup requirements are large, special techniques are useful.

Fortunately, heater manufacturers have simple formulas for calculating heater requirements, and, as a service, their engineers make these calculations.

Choosing The Source

After finding the heater capacity required for an application, your next step is to select the heat source. There are many heating methods available, such as steam or hot-water jackets or coils, Dowtherm and similar heat exchangers, as well as radiant and direct-contact heaters. In packaging machinery, electric heat is common, and there are shapes and designs to meet nearly every requirement.

THE CONTROLLER

With over 200 manufacturers of temperature controllers and a multiplicity of operating methods, packagers need some guideposts to aid their selection. Cost is one, but with a knowledge of his true controller needs, a buyer can often save money or, for small extra cost, get a superior controller.

Here are a few items to check.

1—Temperature Range

Your application dictates this, but you should note two additional qualifications:

a. What about the overshoot or undershoot possibilities? The controller must be within these limits.

b. Are there any possibilities of using the controller on other types of packages or materials? If so, the range must be adequate and the controller readily adjustable.

2—Sensitivity

How much temperature change do you need to actuate the controller? All things equal, the better the sensitivity, the narrower the resulting bandwidth of the overall system. Packagers faced with modifying or adapting existing equipment often find it hard to make basic changes in an existing thermal-system design and layout. It is often best for them to choose a more sensitive controller than might otherwise be necessary.

3—Response Speed

This depends largely on the operating principle of the controller and is a measure of the time it takes to translate a temperature change into controller action. It is distinctly different from sensitivity, one being measured in time, and the other in degrees.

To explain the effect of operating principle on speed, a typical unit consists of a temperature-sensitive outer shell that totally encloses the contacts. As the shell expands or contracts with temperature change, it forces the contacts to make or break. Since the outer shell is the temperature-responsive member, and since it can be directly and intimately in contact with what is to be sensed or controlled, its response time is minimized.

In an indicating model, a transistorized controller utilizes a thermistor sensing element. Mounted in a probe, and capable of being mounted at substantial distances from the indicating meter, this semiconductor can be made as small as a pinhead. Because of its minute size, it heats through quickly in response to temperature change. Thus it, too, has a rapid response speed.

4—Control Mode

The two most common methods are *on-off* and proportioning, or throttling, control. The former results in some over- and undershoot, which may be excessive under certain conditions. Proportioning tends to prevent overshoot by tailoring the correction to the amount of the temperature error.

5—Other Factors

Considerations not to be overlooked include current/voltage ratings of the controller, sensing-element dimensions and mounting capability, and proof of the controller's effectiveness in packaging applications. *(End)*

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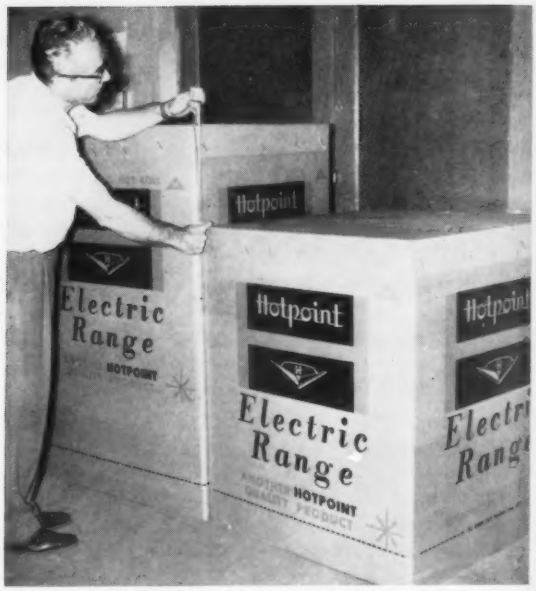
Hotpoint's packaging engineers and product development engineers work together to redesign both package and product—kitchen ranges—effecting a total annual saving of $151,000 on packaging materials, warehouse space, and transportation.



OLD VERSUS NEW. New package (right) is 13 in. shorter than old package (left). Containers are same width, but new one is 3 in. longer which allows adequate space for tipped over control panel.

Product redesign improves packaging

By Ray Jaski
Packaging Engineer, Kitchen Appliance Division
Hotpoint, Division of General Electric Company
Chicago

Any packaging engineer responsible for structural package design should get in on the initial product design (or redesign of an old product) early enough in the development program to avoid potential problems or high package costs. He should do this—formally or informally. Corporate procedure may "specify" this cooperation or simply leave it to the initiative of the packaging engineers.

We strongly believe in this philosophy and encourage our packaging engineers to be on the lookout for ways to improve both the package and the product. This works both ways. Our product engineers may see how to improve a package.

Recently our packaging engineers found a way to improve the functional design of our packaging for kitchen ranges by redesigning the product. After scrutinizing the range and its package, the packaging men suggested a change in product design permitting improvement of the package.

The Product Problem

Each range (both the 30- and 40-in. sizes) has a tall thin panel (about 3x13 in.) across the back edge of the top, which contains electric controls. Since it extends above the range, the control panel is subject to damage if it is shipped in normal-use position. There is nothing in the range structure, nor anything around the control panel, to protect it or its glass panels.

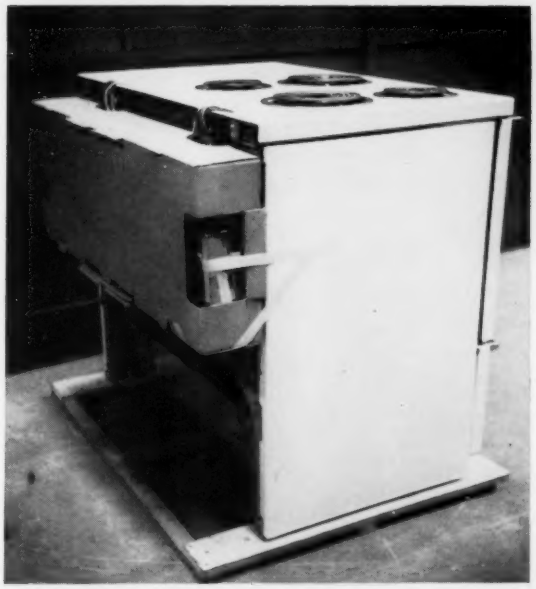
With the control panel of the 40-in. range extending above the range, we were packaging about 8 cu. ft. of air merely to enclose the panel within the package. In addition, we needed extra strength in the container to protect the control panel from lateral shock and puncture.

Since the ranges weigh between 240 and 320 lb., we need high compression resistance in each package so it stands up in a stack in our warehouse. Corrugated board and wood veneer corner posts with high compression resistance are necessary to protect ranges (packaged in corrugated boxes) from damage by crushing under a stack weight.

Find The Key

After studying a packaging problem for a while, you finally see the key that lets you improve the package—through product redesign (or good product design before developing the package). This may

IN OLD PACKAGE, permanently mounted panel extended above range top making it subject to damage. To enclose it within package and protect it properly required "packaging" about 8 cu. ft. of air.



IN NEW PACKAGE, panel is tipped back accounting for 13-in. height reduction. Packaging engineers, with product engineers, developed hinged panel; reduced air "packaged" to less than 2 cu. ft.

result from a continuing, conscious process—or a flash of inspiration. We try to make this a continuing and constructive process by encouraging our packaging engineers to think constructively about our products and how they relate to their package.

In this case, the initial approach was evident: the key to redesign was the control panel; the challenge—how do we change it?

Hinge Panel To Range

Our answer was a hinge. Instead of having the control panel extend above the range—and waste a lot of packaging material and space—we put two hinges where the panel joins the back edge of the top and tilt the panel over backwards before packaging. In this way, it rests along the back of the range. We have thus reduced the 8 cu. ft. of waste air space that was in the old package. In our new one there is less than 2 cu. ft. of air space, and it is now below the panel at the back of the range. Further, we have a flat top surface to package.

The hinges replace two hard-to-get-at bolts formerly used to hold the control panel upright. Now, instead of bolts, we use two sheet metal screws to lock the panel in place for use. This aids unpackaging and use-out. A retail dealer now sets up the range more easily than before. Formerly he had to remove the control panel to remove protective packaging materials.

When our packaging group first proposed this change, our product engineers accepted it. The other engineering groups went along with it, too.

Using It On-The-Line

This change in product design simplified the packaging operation. As a range moves along our production line, an operator tips the control panel over and tapes it firmly against the back of the range with two strips of glass-fibre-reinforced pressure-sensitive tape.

Next, an operator tapes a one-piece 200-lb.-test B-flute single-wall die-cut and scored corrugated sheet over the panel. Both operations take place right on our assembly line.

This corrugated support fits over the control panel, along the inside wall of the shipper, and holds the box wall away from the control panel. The support transmits any shock from the container wall to the body of the range. The sheet steel range body is stronger than the control panel and impacts do not harm it. Thus since the package and the range body absorb shock, glass breakage in the control panel is no longer a problem.

Then the ranges move along powered conveyor lines to the station where a two-man team places a 250-lb.-test A-flute single-wall cor-

Ray Jaski attended the Greer Shop Training schools and Illinois Institute of Technology. He has studied value analysis and time-study methods—a part of his company's training program—and he recently completed the requirements for a certificate in packaging from Purdue University. Before joining Hotpoint three and a half years ago, Mr. Jaski was for ten years associated with Motorola as a military packaging engineer.

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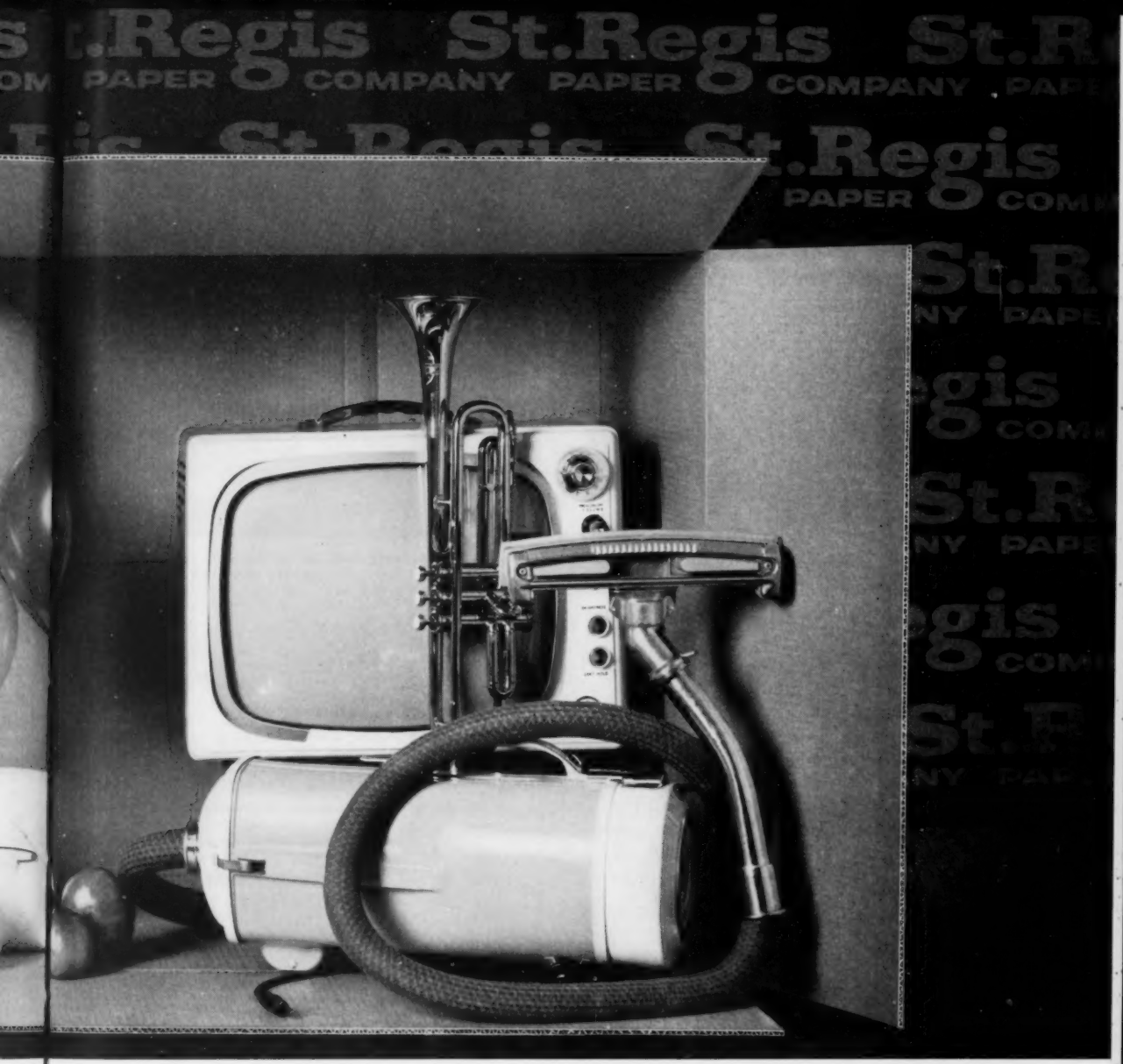

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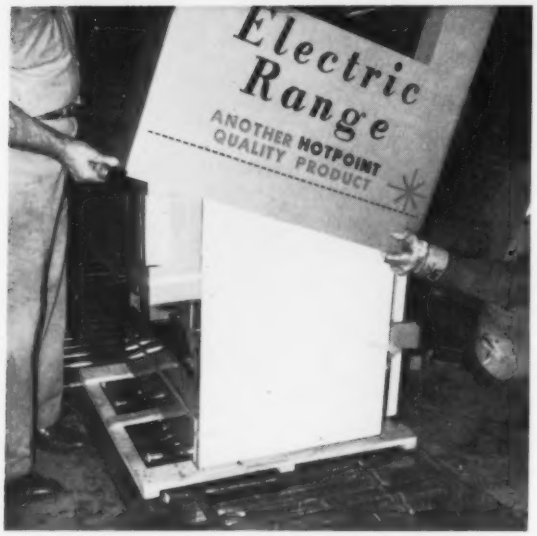

SINGLE-WALL CORRUGATED TUBE goes over range after control panel is tipped back and covered with corrugated support. Then men push range on unpowered conveyor section to second two-man team.

CORNER POSTS (corrugated and wood veneer) go between range and inner surface of container. Supplying added compression strength, these posts allow stacking range containers nine high in warehouse.

rugated tube over the 30-in. ranges, and a 350-lb.-test A- and B-flute double-wall corrugated tube over the 40-in. ranges. Next, these two men push the range along an unpowered section of conveyor to a second two-man team.

These men place corrugated and wood veneer corner posts in each corner of the tube—between the range and the box walls. After that they place a 275-lb.-test B-flute singe-wall corrugated cap over either of the two tube sizes and lock the cap into place with locking tabs pushed through slots in tube flanges. Then the ranges move along powered conveyors, and through our automatic case sealing equipment.*

Two Groups Work Well

Having two or more groups of engineers working together to get a job done aids packaging development. Packaging men should contribute ideas to product design

*Ray Jaski, "Structural redesign for damage-free packaging, less material use," PACKAGE ENGINEERING, 4 (Nov., 1959), pp. 76-83.

FLANGE around top of tube folds over. Note locking holes to hold cap in place. Tube is 250-lb.-test single-wall corrugated for 30-in. ranges, 350-lb.-test double-wall corrugated for 40-in. ranges.

CORRUGATED CAP goes over container. Men lock it in place by pushing tabs on cap through locking holes of container flange. This holds cap in correct position for automatic gluing and sealing.

and packaging design whenever they can. This concept of having cooperation (informal, as here, or formal—as a recognized part of the corporate structure) between packaging and product engineers has paid off for us.

We encourage constructive thinking and free exchange of ideas about packaging problems. No one engineering group can always come up with all the correct answers. But with two (or more) different groups working on the same problem, we get different ideas on how to approach it.

Results Pay Dividends

In this case, by cutting the package height 13 in., we now ship the same number of ranges in two railroad cars whereas it required three cars for the old taller package. This is a 33-per-cent saving in transportation expense due to increased railroad car payload.

In effect, the new package has increased our warehouse capacity. We stack them nine high instead of only seven. Although the new package is 3 in. wider than the old one, the 13-in. decrease in package height gives us an effective increase of about 25 per cent storage space—it allows stacking the ranges 28.5 per cent higher.

RANGES IN OLD CONTAINERS stacked seven high in warehouse. New package allows stacking nine high in same amount of space.

Presently we use corner posts in our package to resist the weight of the warehouse stack—as much as 2,560 lb. on the bottom box in a stack. Through our continuing program of correlating structural package design with product design, we plan to make the ranges load-bearing by beefing up internal construction of the ranges—and then eliminate the corner posts of the package. This will mean additional cost savings in packaging materials.

We estimate the total savings on our current package improvement (for two sizes and several styles of ranges) at $151,000 per year—approximately $51,000 on packaging materials (less inner packing and corrugated) and $100,000 on transportation.

Our next improvement should make an additional $43,000 saving—all from making one product modification—changing the control panel. *(End)*

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Editors tour AMA show, find many "first showings"

With 372 exhibitors occupying a record breaking 162,000 sq. ft. at McCormick Place (Chicago's new lakefront exhibition hall), AMA held its 30th National Packaging Exposition, April 10-13. Having had 23,000 visitors the first two days alone (plus 700 registrants for AMA's National Packaging Conference), AMA and show officials predicted at press time (April 12) an attendance well in excess of 30,000.

Next year's AMA show will be held April 9-12 in the New York Coliseum.

PACKAGE ENGINEERING editors toured the four acres (all on one floor) of this year's packaging show on Chicago's lakefront to see what the exhibitors were showing for the first time. Here is their rundown on new containers, materials, and packaging components, as well as machinery and equipment.

Containers And Packages

Continental Can Co. showed its new Insta-Pak, a multi-compartment self-mixing polyester-polyethylene package. Crystals inside generate heat or cold upon mixing liquid and powder components. Key to its unique function is a rupturable interior-separating membrane that is leakproof under shipping and handling pressures yet breaks easily when squeezed by hand.

Plastomatic Corp. showed a cup molded with an integral bead around its top. A very thin joint connects the bead to the rest of the cup. After filling, a lamination of polyester, saran, and polyethylene is heat sealed to this bead automatically. To open, a tab (an extension of one part of the bead) is folded upward, breaking the joint between the bead and the rest of the container. Once broken, the entire bead, with film still sealed to it, is removed and then used to reclose the cup.

Anaconda Aluminum Co. showed lightweight spiral-wound aluminum foil-to-fibreboard cans suitable for products not requiring excessive internal pressures. Can body wall consists of four layers: foil, two layers of fibreboard, and an outside layer of foil which can serve as a label. A folded lap seam designed to give metal-to-metal contact makes a positive moisture barrier, says the producer.

S. S. White Dental Manufacturing Co. showed a new series of tapered elastomeric polyethylene closures used to protect threaded and nonthreaded industrial parts (valves, meters, gauges, hydraulic hoses, etc.) during processing, shipping, and storage.

R. C. Can Co. showed a foil-laminated spiral-wound metal-end fibre can for frozen citrus juices and motor oil. It is made of 0.00035-in. foil to paper to 0.010-in. board to 0.012-in. board to paper to 0.0035-in. gravure printed foil (inside to outside layers).

J. L. Clark Manufacturing Co. showed a drawn aluminum can, a two-piece compound-seal-end lithographed container.

Lily-Tulip Cup Corp. showed a portion-control heat-sealed package. The tray is filled and covered. The film can be light or heavy; trays are preformed. Special feature is the lip or tuck which can be centered or at an end to facilitate opening.

Ekco-Alcoa Containers Inc. showed its experimental packages: a conduit shaker with both pouring and shaker openings. It consists of an aluminum cylinder with a foil-laminated sleeve. Also displayed—a toaster package for bacon slices and a butter cylinder featuring decreased odor absorption because it is a push-up package. Ekco-Alcoa also showed a toaster package for preparing an egg.

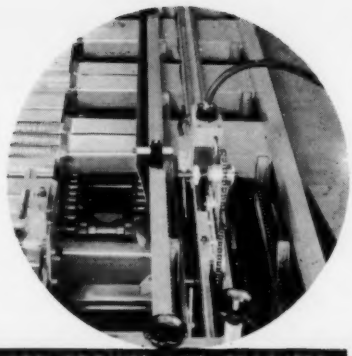
Chase Bag Co. showed a new moisture-resistant shipping sack featuring a multiwall construction which includes a separate intermediate ply (not a liner) of lightweight sheet polyethylene, spot-pasted at top and bottom to adjacent layers of heavy-duty kraft. The polyethylene film is not next to the product and as a result is protected from abrasion and other mechanical injuries from the bag contents as well as from the outside.

U.S. Steel Products Div., United States Steel Corp., showed a newly designed steel pail. Its shape allows empty pails to nest, thus cutting storage and shipping space. These pails meet ICC specs and can be closed on existing equipment, the maker says.

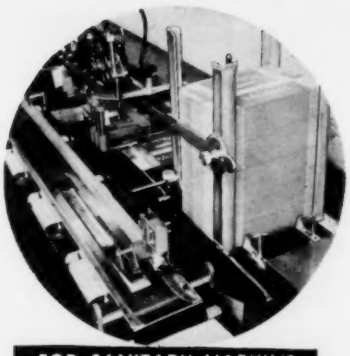
Raymond Bag Corp. showed its new multiwall paper bag with 0.002- and 0.003-in. polyethylene or thermoplastic tubing enclosed.

(Turn page)

FOR ALUMINUM FOIL

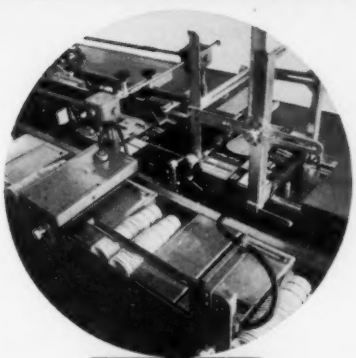


FOR COOKIES AND CRACKERS

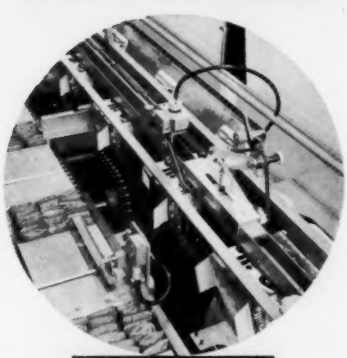


FOR SANITARY NAPKINS

PIES AND CAKES



PAPER CUPS



SCOURING PADS

the perfect combination of speed and flexibility

CECO MODEL 50 AUTOMATIC

Here is the machine specifically designed for the problem package – rolls of aluminum foil, sanitary napkins, paper products, cookies – any product that can take advantage of CECO's bucket feed method. Automatic? Right, fully automatic. This is a constant motion cartoner in which the carton is opened, product inserted, and carton closed – automatically. The opportunities to save on labor costs are exceptional. Flexible? Right again! Changeover from a 7" roll of aluminum foil to an 18" roll takes less than 30 minutes. And, like all CECO cartoners, the Model 50 can be had to handle either glue or tuck style cartons and can be accessorized to meet individual requirements.

A MACHINE FOR EVERY REQUIREMENT

Other CECO machines include the Model 3901 glue sealing machine, the Model 40 semi-automatic cartoning machine, and the Model 45 fully automatic.

CECO

CONTAINER EQUIPMENT CORPORATION
BLOOMFIELD, NEW JERSEY

CONTAINER EQUIPMENT CORPORATION
78 LOCUST AVENUE, BLOOMFIELD, NEW JERSEY

Please send literature checked off:

☐ Model 3901 ☐ Model 45 ☐ Model 40 ☐ Model 50

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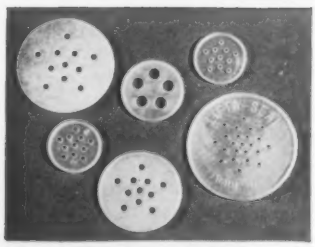
Easy to apply
Just snap on

Economical
No cap liner needed

Sales-wise
WS Sifter Tops build repeat sales



WS makes plastic caps (custom and standard), tips and fitments, lead and aluminum fold-up tubes.

Ask your WS salesman, or call collect . . . Crestview 7-3000

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Los Angeles, Calif.
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WHEELING STAMPING CO.
WHEELING, W. VA.
WSCO

The Cleveland Container Co. showed a container with a tear-top aluminum end seamed to it. It has a pull tab which breaks at a prescored line, thus permitting reclosure.

National Can Corp. showed a 1-gal. F-style can equipped with a vent hole and plastic hinged-cap plug. The opening speeds filling on a user packaging line, and after filling the plug goes into place. When opened for product pouring, the vent hole provides faster, more even flow without gurgling.

Materials And Components

Lawter Chemicals Inc. showed a new line of fluorescent printing pigments for printing inks. These pigments adapt fluorescent "high visibility" colors to all types of high-speed long-run printing processes.

American Cyanamid Co. showed a white fluorescent dye for paperboard that provides contrast for printing and enhances whiteness. It supplements but does not replace bleaches in board making.

Columbian Rope Co. showed a new paper-covered-rayon or paper-covered-sisal-twine to give greater working strength and cut the cost per pound, as compared with jute twines of similar construction and class. The big advantage is cutting the cost of importing from foreign jute suppliers.

Packaging Components, Inc. showed "Satin-Pak," an extruded, expanded polystyrene formed to exact product contours that "gently but firmly" cradles the product during shipments. It ranges from tissue thin to extra thick, and comes in white or colors. Its producer reports it is grease resistant, lightweight, and FDA-approved for direct-contact packaging of foods, drugs, and cosmetics.

American Viscose Corp. showed three new high-yield nitrocellulose-coated cellophanes, two of which give 5 per cent higher yield, and one (a polymer-coated film) gives 19 per cent more yield, and is smoother and has more grease resistance than its conventional cellophanes.

(Turn page)

BEMIS ULTRA-PAK—

the tetrahedron-shaped container that you form, fill and seal on a single, amazingly fast machine—opens a new world of consumer packaging opportunity.

Packaging what? Jellies, juices, concentrates, milk (with a *built-in straw*, if you wish), powders, granules, ice cream, salad dressing, cheese, shampoo, oils . . . a list a mile long, and growing.

Sizes? From ⅛ ounce (enough mustard for a small sandwich) to 8 ounces or more.

Materials? The *full range* of heat-sealing films, foils and laminations . . . *merchandising* materials.

Economy? As developed by PACKAGING FRONTIERS, Inc., Bemis' newest subsidiary, the tetrahedron becomes the lowest-cost hermetically sealed container ever created. Please write or phone for complete details.

General Offices—408-X Pine St., St. Louis 2

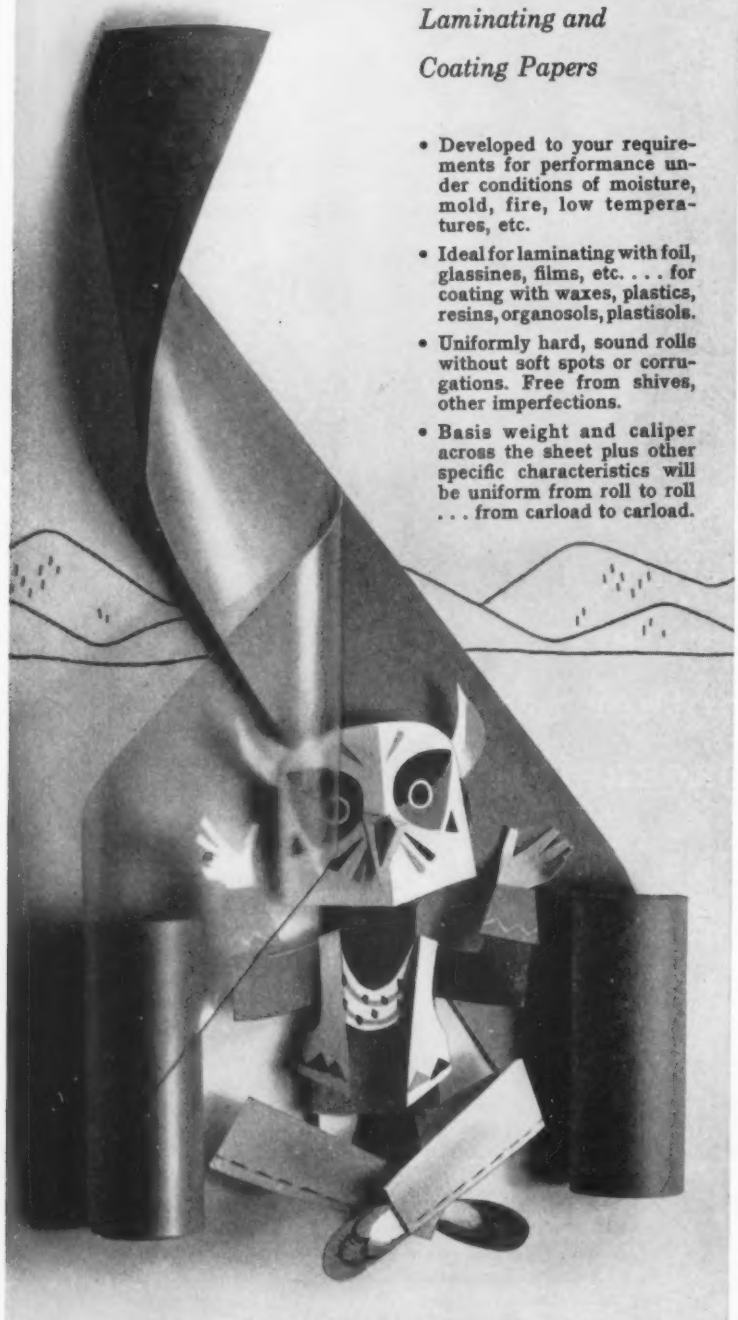
BEMIS BRO. BAG CO.

where packaging ideas are born

MOSINEE MAKES MAGIC WITH PAPER

Laminating and Coating Papers

- Developed to your requirements for performance under conditions of moisture, mold, fire, low temperatures, etc.
- Ideal for laminating with foil, glassines, films, etc. . . . for coating with waxes, plastics, resins, organosols, plastisols.
- Uniformly hard, sound rolls without soft spots or corrugations. Free from shives, other imperfections.
- Basis weight and caliper across the sheet plus other specific characteristics will be uniform from roll to roll . . . from carload to carload.



MOSINEE
PAPER MILLS COMPANY
MOSINEE, WISCONSIN

FREE—DATA FILE AND PAPER TERMS DICTIONARY
Write Dept. PA-5

Mystik Adhesive Products, Inc. showed a water-resistant pressure-sensitive paper tape for shipping containers. Its backing reinforced with rope fiber, the tape's tensile strength ranges from 12 to 45 lb./in. width; its tear resistance is 100 gm./2 in. width. The adhesive is a synthetic elastomer.

E. I. du Pont de Nemours Co. (Inc.) showed a printable, gluable polyethylene extrusion coating. Also, it showed the Stone and Forsyth machine for handling single-wall cartons for fish fillets—14-pt. carton stock, with a 0.00075-in. coating on one side and 0.00050-in. coating on the other side, both of polyethylene. Equipment is designed for limited space.

Janesville Cotton Mills showed a new spray coating on bound-hair cushioning materials to reduce abrasion on finished parts.

Simon Adhesive Products Corp. showed several decorative pressure-sensitive materials based on metallized polyester and polyester vinyl laminates suitable for use in packaging plastic items as well as in production of signs, nameplates, and inserts in the manufacture of small electrical appliances.

Allen Hollander Co. Inc. showed pressure-sensitive labels that run through electronic data processing equipment to print labels directly off punch cards or tapes.

Equipment

Ultra Sonic Seal, Inc. Div., Kleer Vu Industries, Inc., showed a sealer using ultrasonic principles to "weld" packaging materials such as cellophane, polyethylene, polyester, vinyl, nylon, and others. The machine reportedly seals thicknesses ranging from 0.00025 to 0.040 in. at working speeds of up to 50 linear ft./min.

Industrial Packaging Div., American Viscose Corp., showed automatic strapping equipment to use Avisco rayon strapping material. It straps 6x6-in. (or greater than 24-in. periphery) up to 20x20-in. packages automatically, adjusting tension to any shape automatically.

Chicago Printed String Co.

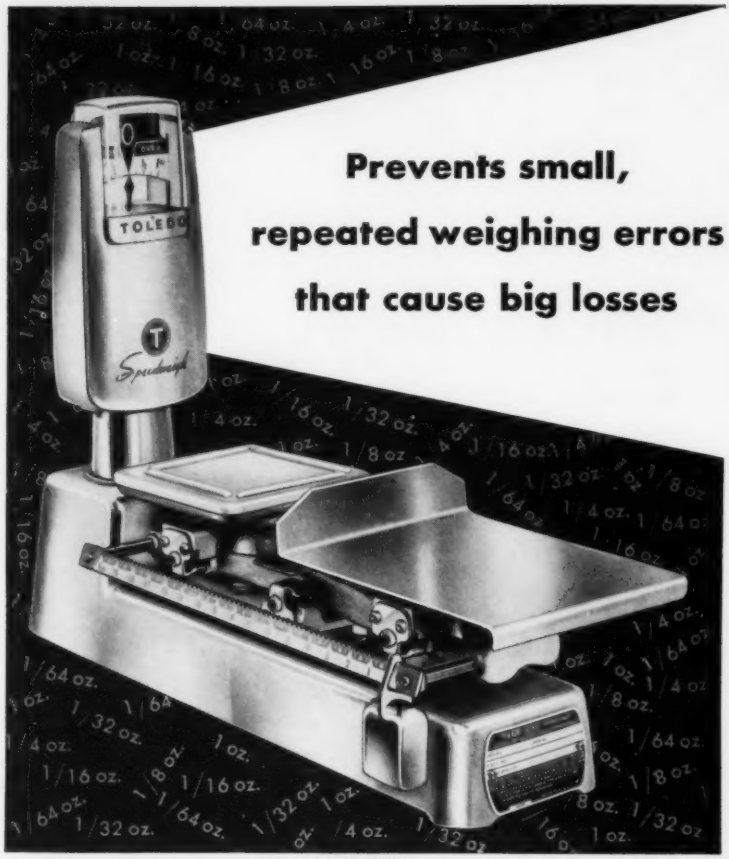
showed an automatic machine for strapping various size packages at a speed of up to 25/min. Using 3/16-in.-wide rayon strapping, the machine places strapping in only one direction around the package, which can range in size from 1 to 16 in. high, 2 to 24 in. wide (if strapping is to be centered), and 8 in. to any practical maximum in length.

Climax Products Div., The Lodge & Shipley Co., showed an automatic four-flap case opener designed for continuous straight-line operation. Adjustable for various sizes of unused four-flap shipping containers and working on a combination vacuum-mechanical principle, the equipment opens all four flaps of a case at a speed of up to 25 cases/min., and without turning the cases.

Sealaround Corp. showed a heat-shrink tunnel for shrinking films such as polyethylene, saran, and so on. Consisting of a 38-in.-long insulated tunnel which generates heat ranging from 200° to 600°F., the equipment evenly shrinks top, sides, and bottom of a package. An endless steel-wire belt operates at a speed of from 4½ to 10 ft./min.

G. T. Schjeldahl Co. showed a machine for hermetically sealing bi-oriented polystyrene lids and trays. Depending on the thickness of the preformed trays and lids, and on dwell time and product temperature, the machine may be operated manually or automatically at a speed of up to 800 trays/hr. Maximum dimensions of package –flat, dome, recessed, or telescoping–that the machine takes are 9x11x3½ in.

Emhart Manufacturing Co., Portland Div., showed a machine which utilizes multiple-cavity molds (maximum forming area of 20x23 in.) for pressure-forming containers from rigid thermoplastic sheet stock such as oriented polystyrene. It operates hydraulically at up to 20 cycles/min. Emhart also showed a tray sealer, companion to the forming machine. It heat seals rigid plastic lids to



Model 3012

NEW TOLEDO SPEEDWEIGH®

For Checkweighing, Filling, Counting-by-weight

If there is *any* chance that your profits are being drained off by small, repeated errors in weighing items to 5 lbs., here's the solution. Police your weights with the new Toledo Speedweigh Model 3012. • Sensitive to 1/64 oz. Available with side, end or 45° indication, Model 3012 will do away with costly errors in checkweighing, filling, weight-counting and weighing to predetermined quantities. • The flush indicator and clear plastic cover on tower give you crisp, accurate readings without parallax errors. Indicator travel is regularly one inch per oz. and chart is readable from either side. What's more, compact, rigid construction makes Model 3012 a natural for crowded production lines . . . allows it to be moved about to fill on-the-spot weighing needs without releveling in normal use. Corrosion-resistant materials used throughout for long-life accuracy and reliability. SEND for Bulletin 2112 today.

SPEEDWEIGH MODEL 3012 OFFERS OUTSTANDING ADVANTAGES

Versatile . . . indicator tower in your choice of facing directions (end, side or 45°). Wide selection of commodity equipment. Double beams available.

Sensitive . . . to 1/64 oz. Maximum platter drop of 1/16" under full load for high speed indication.

Heavy-Duty Construction . . . All parts highly resistant to corrosion, chipping and rust. Low center of gravity. Choice of attractive finishes. Movable without releveling.

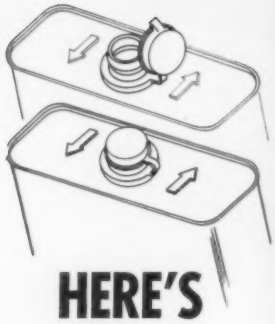
SERVICE Factory-Trained 240 Cities

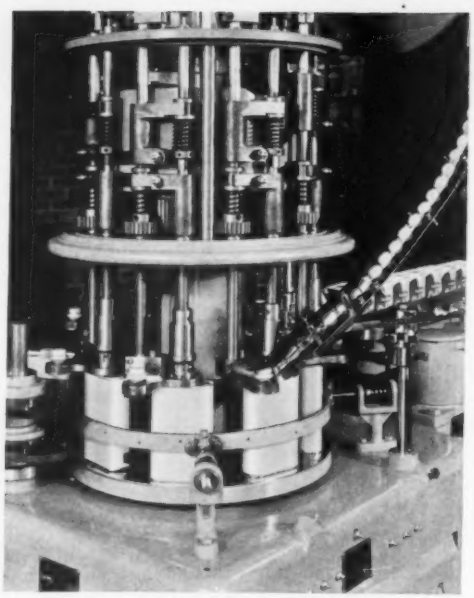
TOLEDO® *Headquarters for Weighing Systems*

TOLEDO SCALE, Toledo 12, Ohio

Division of Toledo Scale Corporation

(Toledo Scale Co. of Canada Ltd., Windsor, Ontario)

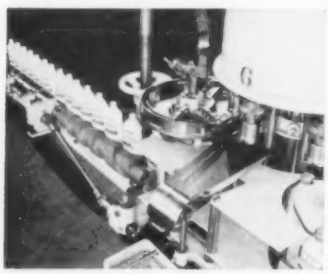




HERE'S BEST WAY TO APPLY THE NEW PLASTIC "FLIP CAPS"

Plastic "Flip Caps" give the new 1961 look to both "F" and "I" type cans. Consolidated has perfected the dependable, fully automatic method for applying these new plastic closures which replace the soldered screw-neck nozzles which have been in use for over 25 years.

The new D8-FS Consolidated Capper is available in models with 2 to 8 spindles and with capacities from 40 to 250 containers per minute. The plastic fitments with *captive plastic caps* are fed from a hopper and inserted by straight down pressure rather than rotary screw motion previously used on metal screw caps. Caps are oriented with hinge strap parallel to length of can. Cost-consuming soldering is eliminated by the neckless can — your packages are up-dated for increased consumer appeal. Consumers prefer this type cap because of convenience of handling. Both quart and pint sizes can be handled with equal ease.



Consolidated D6-F Capper in use at S. C. Johnson & Co. applying plastic screw-type closures with captive caps to plastic containers. The new design, adjustable tension grips hold plastic containers firmly without collapsing them. Capacity 120 containers per minute.

For complete information about this most modern equipment for applying these most modern caps, write today.

CONSOLIDATED PACKAGING MACHINERY CORP.

A Subsidiary of International Paper Company

1400 West Avenue, Buffalo 13, N. Y.

the above containers at a speed of 10 to 15 trays/min. per head, depending on package size. Package dimensions machine accommodates are: 3-in. maximum height; 2⅜- to 6-in. width; 4½- to 10-in. length; 4½- to 6-in. diameter.

Technical Tape Corp. showed a high-speed automatic labeler for applying pressure-sensitive labels any shape or size up to 3 in. square at a rate of up to 6,000/hr. Automatically adjusting to variations in height, the machine mechanically picks a label off its backing paper and applies it directly to product of regular or irregular shape. The unit measure 11x12x14 in. and operates on 110 v.a.c. A 4-line 5-digit printer is available as optional equipment.

Advance Process Supply Co. Inc. showed an American Equipment Co. automatic screen printing unit running at 10 containers/hr. Its special features include screens of nylon or stainless steel.

The Mark Andrews Co., Inc. showed a label press that prints die-cuts, perforates sheets, and punches labels, operating at 150 linear ft./min. To handle multiple colors, the machine can add printing stations as needed.

Tele-Sonic Packaging Corp. showed a clustered roll machine featuring rheostat control of air for opening preformed bags, pillar-lock mounting, and quick adjustment for width and height of a slip-in magazine operating on a rise-and-fall principle. This semi-automatic machine is designed so that an operator may run it consistently at a typical speed of 35/min.

Amaco, Inc. showed the Arbis/5F0 automatic silk screen printer and furnace incorporated as a complete unit. The thermostatically-controlled electric furnace and automatic infeed conveyor fully adjust from one size and type ampul to another in less than 10 min. It handles ampuls up to 20 mm. diameter x 150 mm. length, printing, preheating glassware, firing, and unloading in about 2 min.

Plast-O-Craft Co., Inc. showed a

Rough handling can't damage delicate instruments

—not when B.F.Goodrich package cushioning protects them. For answers on perplexing package-cushioning problems, write for our data-packed booklet which explains how to select and design package cushioning to reduce damage from shock, vibration. Send request on your company letterhead. The B.F.Goodrich Company, 188 Derby Place, Shelton, Connecticut.

PACKAGE CUSHIONING BY B.F.Goodrich

MOVE BULK MATERIALS MORE EFFICIENTLY

SYNTRON VIBRATORY FEEDERS

COMBINE DEPENDABILITY, HIGH CAPACITY AND CONTROLLED FEEDING

Now, you can buy a plant proven Vibratory Feeder designed to handle a great diversity of particle sizes.

Powered by Syntrons' electromagnet drive — simple, powerful, void of mechanical moving parts—assures dependability, long life and low maintenance. Instant control of amplitude permits quick, accurate adjustment of material flow.

Available for floor or suspension mounting with flat pan or tubular trough in sizes to meet every feeding requirement.

Write for a Syntron Catalog and the name of the representative near you.

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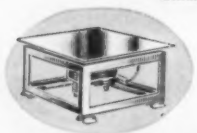
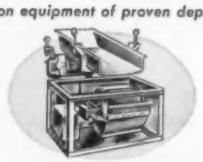
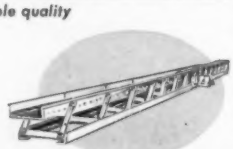
Other Syntron equipment of proven dependable quality



Packer & Jolters



Gravimetric Feeders



Mechanical Vibrating Conveyors

new model vacuum former handling such thermoforming materials as ployethylene, styrene, acetate, butyrate–sheet- or roll-fed. Changeover from a different size or shape of mold to another takes only a few minutes.

H. L. Stoker Co. showed its new air pressure packer for powdery, granular, and pelleted materials, combining a space saving pressurized delivery system with an electronic weighing system.

Atlas Vac-Machine Corp. showed its universal thermoforming machine capable of forming (by pressure, vacuum, and plug assist) materials such as acetate, butyrate, vinyl, styrene, and polyester. The complete in-line machine forms and trims at 10 to 12 cycles/min.

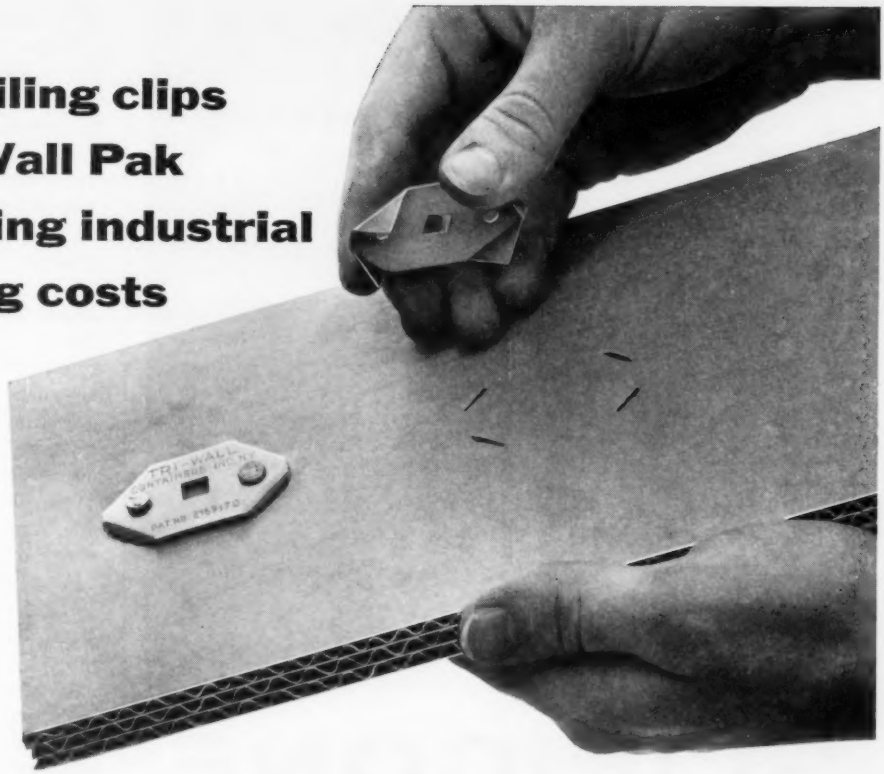
Marsh Stencil Machine Co. showed its FR-100 fountain roller in which stencil ink is pump fed from the reservoir in the handle to the inside core of the synthetic foam rubber roller. Smooth rolling action applies the ink to the stencil. Thumb or finger pressure operates the pump feed, giving the operator control of ink feed for light or heavy marking. Its reservoir holds 3 oz. stencil ink—enough to mark approximately 1,000 addresses.

Pacific Packtron Systems, Inc. showed a new Illumitronic checkweigher which gives five weight classifications (to 1/20 oz. differences) for finer over- and under-control on packaging lines. It is designed to give a narrower control range of weights. It is automatic, with packages moving over one scale, then to any of five following tracks depending on weight class.

John Burton Machine Corp. showed strip tax stamp and cellophane band applying equipment for liquor bottles. This provides automatic application of tax stamps over tops of bottles, places cellulose bands around necks at rate of 60 bottles/min.

Triangle Machinery Co. showed a new filler, a twin-tube form-fill-seal unit handling a package up to 11x16 in. Both sides can operate

These nailing clips and Tri-Wall Pak are slashing industrial packaging costs



Tri-Wall Pak is a triple-wall corrugated board whose amazing strength has won it a well-earned place in industrial packaging.

Now, with the development of the Tri-Wall nailing clip, you can use this economical packaging material in more ways than ever before.

The Tri-Wall nailing clip has three holes. The two smaller holes will take up to a 20-penny nail; the large square hole, up to a ¼" carriage or machine bolt.

Eight Tri-Wall nailing clips make it possible to secure wooden blocking against walls of Tri-Wall Pak container to float-support 300-lb. differential for White Motor Co. *Carton at right has been cut open to show interior.*

With this clip you can nail or bolt internal wooden blocking right to the walls of Tri-Wall Pak containers ...you can construct low-cost pallets by nailing a sheet of Tri-Wall Pak to wooden skids...you can immobilize heavy equipment within Tri-Wall Pak cartons by bolting through existing mounting holes to nailing clips embedded on the outer side of the container. Your own imagination will suggest many other uses.

In all these applications, the clips will not pull through except under extreme conditions, since the heads of the nails or bolts press against the face of the metal clip, rather than the surface of the corrugated. Lateral tearing is restrained by the four corner prongs that bite firmly into the triple-wall corrugated.

Tri-Wall nailing clips and their application are a patented development of Tri-Wall Containers, Inc. Their availability is one more reason why it will pay you to call in a Tri-Wall packaging specialist to show how sturdy, lightweight Tri-Wall Pak can save you money on labor, material and tare. For more information on these nailing clips and Tri-Wall Pak containers, write TRI-WALL CONTAINERS, INC., 799 Washington St., New York 14, N. Y.

Tri-Wall Containers, Inc.

Working to advance the usefulness of corrugated

stops sticking

speeds packaging

cuts cleanup

saves money

SLIPICONE

silicone release agent

"wherever sticking is a problem"

SLIPICONE® goes on in a breeze . . . makes any surface slick . . . keeps adhesives, packaging materials and foods from sticking or piling up where you don't want them . . . keeps equipment cleaner, more sanitary . . . assures neat, attractive packages and labels.

SLIPICONE is nontoxic . . . safe to use in contact with all foods. Stays effective over a broad temperature range . . . from 40 below to 400 above zero!

SPRAY OR WIPE IT ON

SLIPICONE comes in four handy sizes: 12 oz. aerosol can; 2 and 8 oz. tubes; 10 lb. can . . . all economical to use.

Get SLIPICONE from your paper merchant, packaging materials supplier, or write Dept. 5417 for name of nearest distributor.

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

independently on two different products. There is a traveling trap-gate volumetric filler. It can run continuously or intermittently or in between at speeds up to 200/min.

Carbert Div., Pneumatic Scale Corp. Ltd., showed an automatic bag loader and sealer for such items as hot dog buns and other bakery products. It is designed to replace two or three people hand loading plastic bags with such products. It operates at 42 sealed bags/min.

Syntron Co. showed a small 1-cu.-ft. capacity dry-batch vibratory mixer. The 3,600 vibrations/min. of the electromagnetic drive provide rapid and thorough mixing of two or more materials.

Food Machinery & Chemical Corp. showed a form-fill-seal unit which operates up to 75 packages/min. on each side. Designed to make large packages (2-lb. frozen food bags) and run as a duplex, it operates two different sizes at different speeds on each half of the machine.

Dave Fischbein Co. showed a portable bag closer. Its special feature is that there is no looper so the thread does not tangle. The machine can start cable stitching right away after starting a new roll without delay. The unit functions automatically.

Signode Steel Strapping Co. showed an air-powered strapping machine which uses power to tension, deliver, and cutoff the steel strapping after securing it.

Bostitch Inc. showed an air-driven portable hand-operated top stapler. It uses wide crown staples. This means using fewer staples, thus cutting down on packaging line labor. Bostitch also showed a ⅜-in. staple for double-wall sealing and for blind sealing (clinch is underneath outer ply) of triple-wall board.

GPE Controls Inc. showed a line guide which controls the web by following a printed line or color contrast. The new feature is that reflected light shines down instead of splitting. This allows a center

line of control or edge control from one sensing head. Also they have a double-roll steering-roll guide. The main thing is that the center pivot must be located directly under the outer periphery of the entry roller of the steering assembly. There is no lateral displacement corrective action, and no variation in tension across the entire width of the roll.

Diagraph-Bradley Industries Inc. showed a new version of its electronic gummed tape dispenser with pushbutton controls. Twelve buttons permit selection in 3-in. increments of from 9 to 78 in. of tape. A foot switch is available making it a pushbutton tape dispenser with a foot control.

The Portland Co. showed a self-induction static eliminater for webs. Static charge on the web charges a bar which, in turn, eliminates the static charge on the web, thus requiring no external power source.

Popper & Sons, Inc. showed a hand-operated plugger for vials used on a hand line. An operator guides each vial under the feeder trough, then spots the plug into the neck. As the operator moves the vial along, a vibrating ram forces the plug into the vial neck.

Ideal Stencil Machine Co. showed a hand-operated tape dispenser to cut reinforced tapes. It bolts on hand trucks or serves in locations not justifying an automatic dispenser.

Ideal Stitcher Co. introduced its electrically-driven wide-crown large-staple combination straight-arm and bottom stitcher which makes its own staples from a roll of wire. It loads 12,500 staples in one loading and staples single- or double-wall corrugated A-, B-, or C-flute.

Wraps, Inc. showed the Dutch-built Piek, a semiautomatic wrapping and folding machine developed especially for packaging rectangular products in heat-sealing transparent films, papers, foils, etc. Mobility, economy, and versatility are chief attributes.

Photomation, Inc. showed its new electronically-controlled photoelectric system for both package sorting and merging control, permitting one conveyor to handle many products of different descriptions.

Labelette showed a can labeler that registers a can label (die-cut) to the ear. An electrical switch actuates the semiautomatic equipment. Essence of the action is reducing the series of rollers to one roller and timing of the can ear with the solenoid. The ear hits the solenoid which operates through a delay timer.

Union Bag-Camp Paper Corp. showed a new V-type sewing conveyor with a V-slot for filling. It centers and forms the bag as the bag falls in place.

Weber Marking Systems Inc. showed a new hand printer to print on any surface—for example, rubber tires, glossy cartons. It uses a new ink formulation that air dries in 1 min. or less.

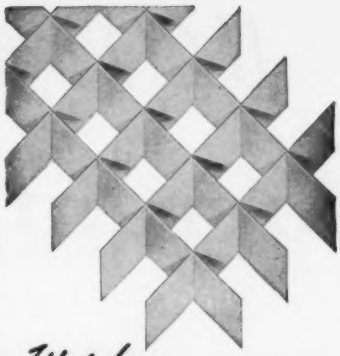
Permacel showed its new hand-operated dispenser which feeds out, applies, wipes down, and cuts tape up to 2-in. wide in one operation.

Ortman-McCain Co. showed its new dry spray applicator, combining mechanical, electrical, and pneumatic features. Its sprays intermittently or continuously on a printed medium.

Fastener Corp. showed its Duo-Fast S-763 staple nailer air-powered to drive 2-in. 16-guage staples three to five times faster than hand nailing.

Inland Wire Products Co. showed two new Speed-Flow machines: a seal-less, fully automatic flat steel strapping machine for reinforcing and bundling all types of shipping containers, bundles and packages; and a fully automatic round steel strapping machine for reinforcing and bundling

Oliver Machinery Co. has a rotary imprinter and rewinder to imprint labels up to 200/min. either cutting and stacking them or rewinding them. It uses two imprinting plates and permits making an insert within the plate itself. *(End)*



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Cadytest Instruments are designed for accuracy in determining or comparing thicknesses, basis weights, or bursting strength. They are available in stock models, or specials for specific tasks. Write for Brochure and Prices, showing entire line.

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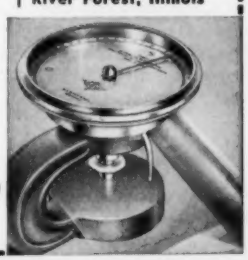

Circle No. 273 on Card

from ALCOA May, 1961

Current Closure Report

The Aluminum RO (Roll-On) method of closure application continues to demonstrate one very basic and compelling advantage over the conventional prethreaded screw-cap or lug-type method of application. In an RO operation the finish of the container functions as the matrix around which the aluminum closure blank is formed. The significance of this simple difference in basic concepts with regard to tolerance problems is readily apparent. Custom-threaded aluminum closures clearly eliminate most tolerance problems normally encountered by prethreaded or lug-type closures.

While this fact alone has generated increasing interest (and many new customers) for ALCOA® RO Closures, several other advantages emerge as you understand more clearly . . .

How Aluminum RO Closures are applied. ALCOA RO Closures are furnished with straight-sided skirts.

The closure is placed on the container . . . the sealing head of the machine exerts a controlled uniform downward pressure embedding the glass sealing surface into the facing material and creating a positive seal . . . rollers in the head of the sealing machine then form the skirt of the closure against the container following the path of the container threads. Each closure is custom-threaded . . . a perfect fit every time.

Liner effectiveness, removal torque, compression. Liner facings are never damaged because the liner is not rotated during application. The danger of a scored facing due to glass irregularities is eliminated. Removal torques are more constant because the need to "jam the cap on" to compensate for dimensional variations is also eliminated. And ALCOA RO Closures will not loosen and leak.

The sealing medium is compressed beyond the degree required. Allowance for slight play between the closure and glass, and the flexing of the closure top, permits release of excess compression which tends to tighten the closure. Ordinary caps, applied by rotation, loosen when the sealing medium permanently sets.

RO method eliminates "cocked caps," sticking liners. RO Closures are designed to furnish a maximum of contact with the glass finish and to achieve the greatest amount of downward pressure to hold the liner in compression against the sealing surface. There is no uneven liner compression to tilt the cap.

At times, facing materials will adhere to the sealing surface of the bottle. With RO Closures the liner is free to slip within the shell and is lifted from the glass by the retaining groove on removal of the closure.

Wide variety, over-all economy. Aluminum closures are available in many types and styles. Whatever you need in a seal can be supplied by an aluminum closure that will meet your most rigid requirements.

Over-all capping operations are economical with aluminum. Since the application of aluminum closures is fast and more closely controlled, greater sealing efficiency is assured and there are fewer rejects. Aluminum Roll-On Closures will not "back-off" and leak . . . and because they combine light weight with strength, they can be shipped inexpensively without danger of breakage.

Research and engineering facilities. ALCOA, the leading producer of aluminum closures, is also the pacesetter in research. ALCOA maintains the most complete research facilities and the largest group of closure technicians in the aluminum industry. Chemists and physicists familiar with the chemical and physical properties of aluminum alloys examine and test the characteristics of all new liner and sealing materials; engineers design packaging lines and build machines that will apply closures faster, better; toxicologists, glass finish specialists, closure designers and authorities on coatings and sealing mediums—all work together at ALCOA to eliminate closure problems and help seal products more effectively, more efficiently.

Customer service. ALCOA customer service is all-inclusive. It begins with the selection or development of a closure capable of meeting the customer's individual product needs, including specification of a coating and liner combination, glass finish, sealing machine and recommendations for packaging procedures. Constant contact is maintained with the customer throughout production of the closures and the precise construction of the sealing machines. When delivered, supervision of the packaging line installation extends to actual line operation to assure proper speeds and efficiency.

And it does not end here. ALCOA's customer service continues through periodic service checks, and an extensive staff of service engineers and packaging specialists is always immediately available should emergency assistance be required.

Your Complete Packaging Service Center

to ALCOA

I am interested in having an Alcoa representative contact me with regard to

- ☐ **Foil Packaging**
- ☐ **Aluminum Closures**
- ☐ **Cans and Containers**

- ☐ Foods
- ☐ Frozen Foods
- ☐ Meats
- ☐ Fish
- ☐ Pet Food
- ☐ Pharmaceuticals
- ☐ Drugs
- ☐ Cosmetics
- ☐ Toiletries
- ☐ Wine
- ☐ Liquor
- ☐ Chemical and Household Products
- ☐ Dairy Products
- ☐ Beer
- ☐ Industrial Parts
- ☐ Instant Beverages
- ☐ Tobacco Products
- ☐ Petroleum Products
- ☐ Condiments
- ☐ Seeds
- ☐ Others

(Fill in specific applications)

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Rutgers packaging program winning industry support

Already offering one graduate packaging course in its department of food science, Rutgers University, New Brunswick, N.J., plans to boost its offering of packaging education. With twelve graduate students coming down the home stretch of its one-term course, Rutgers expects to have a two-term course next year and looks forward to having a full-scale graduate packaging program.

Seeks Grant In Aid

To finance this effort, C. Olin Ball, head of the department of food science, appealed to industry in mid-March for a minimum grant in aid of $10,000 to carry the work through the next academic year. Dr. Ball suggested a starting figure of $500 for each contribution. Already four companies have responded with contributions (each in this amount), and university officials expect four more in the near future.

Edward A. Nebesky, who, like Dr. Ball, is a professor of food science at Rutgers, is teaching the packaging course and will devote more of his time to this work as the program expands. Dr. Nebesky has B.S., M.S., and Ph.D. degrees in food science from the University of Massachusetts. Besides his teaching responsibilities, he handles liaison between industry and Rutgers' food science department. Before coming to Rutgers two years ago he was at Cornell University for three years and prior to that was

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Editor's note: Michigan State University has a fine program of packaging education and research. We hope it gets all the support it needs. At the same time we think MSU would be the first to acknowledge that no one school can do the job alone and that the growing demands of packaging will dictate other schools teaching packaging. Now, Rutgers has a soundly conceived program off to a good start. We hope it, too, gets all the industry help necessary for its growth and refinement.—R.B.H.

For safe shipment use

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packaging tapes

Mystik packaging tapes are developed by specialists who understand your packaging needs. They're rugged tapes that grip tight, seal securely and hold fast through the roughest handling—protect your shipments, reduce damage and claims. Here are three of the most popular:

6325 HIGH-TENSILE ROPE STOCK TAPE. Low in cost, high in tensile strength, this tape is excellent for packaging, sealing containers and splicing rolls of cloth or paper. Resists stains. Holds, binds and seals materials for extended storage.

5800-C WATERPROOF PLASTIC COATED CLOTH TAPE. Here's a strong, flexible tape protected by a waterproof plastic coating. Ideal for repairing and reinforcing materials, and packaging for overseas shipments. Provides tight, waterproof closures for pipes and tubing. Widely used for holding, sealing and repairing where dependability is a must.

5863 WATERPROOF PLASTIC COATED CLOTH TAPE. This is the tape that shrugs off water, salt spray, oils, solvents and aging... extensively used for packaging and protection of overseas shipments. Grips tight, holds fast. Has a very high tensile strength.

Find out how Mystik packaging tapes will help you cut costs in your shipping and packaging operations. Write for additional information today!

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with the Cryovac Division of W. R. Grace & Co.

Dr. Nebesky's course examines the characteristics and properties of different packaging materials, their methods of application, material performance, test methods, and goes into the economic aspects of packaging. His students are doing research while they take this course, and he expects their theses will be in packaging.

Open To Science Grads

Developed as graduate work, the packaging course and eventual packaging program at Rutgers is open to students with an undergraduate degree in any science or engineering. Present students are qualifying for the degrees of master of food science or doctor of philosophy. Dr. Ball and Dr. Nebesky expect that as their program grows students will earn M.S. and Ph.D. degrees *in packaging*.

There are presently no plans to provide undergraduate instruction in packaging, and the sponsors of the course and program expect to limit attendance to those at the graduate level. They stress the importance of having a basic background in one of the sciences of engineering as a prerequisite to grasping the work in packaging at Rutgers.

Full-Year Course Next Year

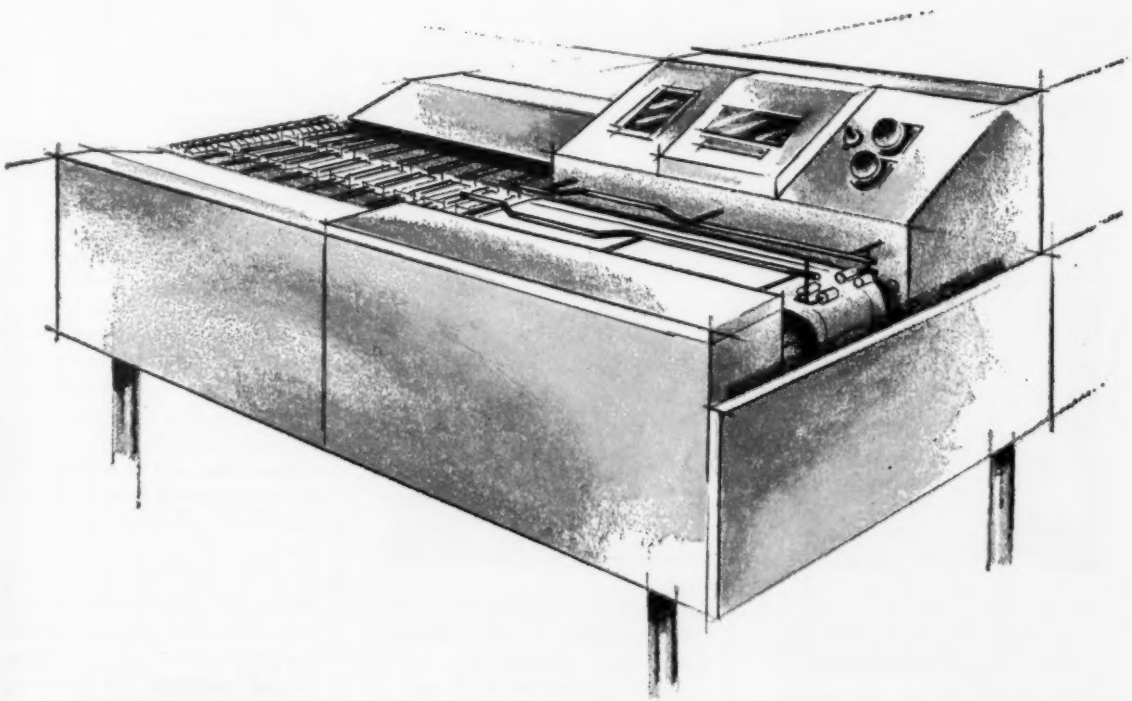
The present and first course in packaging is a three-credit course consisting of two lectures plus laboratory time each week for one half year. Rutgers expects it to be a full-year two-term course next year and is looking forward to greater expansion into a full packaging program after that.

Pleased with the initial response to his appeal for a grant in aid, Dr. Ball offers to discuss the program in greater detail with any interested parties. They may contact him as follows: Prof. C. Olin Ball, chairman, department of food science, Rutgers—The State University, New Jersey Agricultural Experiment Station, Nichol Ave., New Brunswick, N.J. *(End)*

Automatic Weighing IN MOTION with Featherweight Accuracy

When the line runs, capacity counts! Illumitronic Checkweighers, Weight Classifiers and Monitors, weighing in motion, combine speed with featherweight accuracy for economies up to 50% over halt-and-hurry hand weigh methods. Our equipment automatically weighs packages to 10 pounds, with continuous flow speeds to 300 units per minute. Accuracy ±1/30th of 1 ounce; range adjustable from 1/10th of 1 ounce to 2 ounces. Multiple channels for 2, 3, and 5-way classifying of cartons, bags, pouches, overwraps, cans, tubes. These machines are at work withstanding environmental conditions of production lines in frozen, canned and dried foods, meat processing, dietary supplements, dry and liquid detergents and others. Want to know how and where? Drop us a line or pick up the phone and dial 415, RE 9-2395.

Canner? Ask about our high-speed wrap-around label inspection equipment!



illumitronic systems corporation

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ANNOUNCEMENTS OF MACHINERY AND PRODUCTS

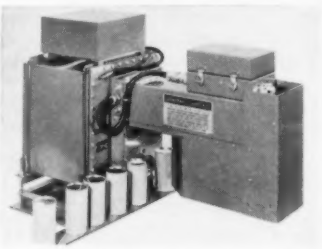
1. Before each announcement headline is a code number. As you select items on which you want more information, *note* this number.
2. Now *circle* the corresponding numbers on the postcard inside the back cover.
3. Next, *fill* in your name and address.
4. Then, *mail* the card— we pay the postage. For your convenience, we have also included addresses of suppliers so that you may write directly for more information.

1—Single-Tube Vertical Flexible Pouch Packager

A flexible packaging machine which produces heat-sealed pouches from roll stock in a single-tube operation has been introduced. Operating at speeds up to 100/min., this vertical packager forms, fills, and seals pillow-type packages of unsupported films (polyvinyl alcohol, polyethylene, polypropylene, and others) and most supported web materials, registered or non-registered. The manufacturer reports that a distinctive feature in the machine's operation is that sealing bars are for sealing only; they do not also pull the web material along. This results in better seals because there is no undue tension on the seals to distort or fracture the film, the manufacturer explains. Another feature the announcement points out is that all size-change tooling is interchangeable without the use of tools. Therefore, changeover takes about 15 min. Production rates of 40 to 100 pouches/min. are dependent on the web material, product characteristics, and fill quantity. Pouch sizes range from 1¾x2 in. up to 8x16 in. This machine pouch-packages granular, powder, liquid, paste materials, or hardware items. Optional equipment includes a seal chilling mechanism, photoelectric web registration, saddle label applicator, tear string applicator, code daters, and the like. For more information on this machine write: Bartelt Engineering Co., Inc., Dept. PE, 1900 Harrison Ave., Rockford, Ill., or *circle number on card.*

2—Fill Inspector

New fill-height inspection speeds of 1,000 containers per min.—aimed at automating the conveyor handling of opaque sealed containers—have been achieved with a new X-ray inspector, the manufacturer states. Named the Hytafill 1000, this inspection unit features a new ion chamber radiation detection system. The maker reports this is more sensitive than the crystal detector of previous X-ray inspectors, it requires less intense radiation, and the hermetically-sealed metal chamber also reduces electrical current requirements for the system. The unit is designed to monitor the fill height of any sufficiently dense liquid or free-flowing solid which seeks its own level in a metal can, plastic container, and many types of glass containers. The unit is adaptable for irregular- as well as regular-shaped containers. In operation, the inspection device detects either underfill or overfill conditions (accuracy is within ± 1/64 in., the maker claims) and can actuate a reject mechanism for removal of unacceptable containers from the line. For more



The Importance of Logic in Packaging Machine Design.

The most successful packaging machine is the most simple in concept. Unnecessary complexity invariably taxes itself in speed, performance, efficiency and maintenance.

Triangle originally entered the bag making, filling and sealing field to develop a single tube machine. No other consideration was allowed to complicate the basic requirements. That's why Triangle's single tube machine has been so unusually successful.

What could be a more logical starting place for developing a multi-tube bag maker, filler and sealer . . . ?

NOW TRIANGLE MORE THAN DOUBLES THE ADVANTAGE OF ITS REMARKABLE BAG MAKER, FILLER AND SEALER!

Regardless of whose equipment you're using or whether you're presently considering equipment purchase, you owe it to yourself to investigate the new Triangle Twin machine. The reason? It has all of the advantages, all of the flexibility, all of the efficiency our single tube equipment has without any of the disadvantages common to all other dual tube machines.

Briefly, Here's Why . . .

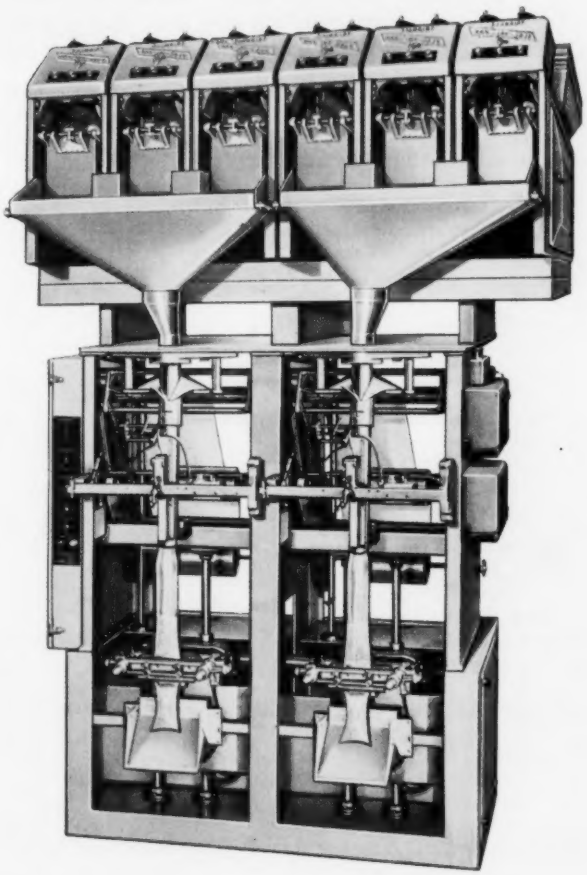
The Triangle Twin is fast . . . 120 bags per minute with any bag material (90 per minute with polyethylene). It will handle a full range of bag sizes up to 8″ x 16″.

The Triangle Twin is a fully integrated combination of two, efficient single tube machines with one common drive . . . yet sealing jaws operate independently to permit one side to operate while the other side is down for film threading or routine maintenance. This feature results in *less* downtime and more production than normally expected.

The Triangle Twin mounts up to *six* Elec-Tri-Pak net weighing scales on top where they belong. No costly intermediate elevator feed is required. Volumetric filler and other synchronized systems are also available.

The Triangle Twin has all the performance of the time proven single tube bag maker and filler . . . fast, simple changeover for all materials from cellophane to polyethylene . . . quick return jaw assembly . . . simple, functional design of sealing jaws. . .

See for yourself how far the Triangle Twin has advanced the concept of high speed bag making, filling and sealing. Write today—without obligation, of course



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Reduce packaging and shipping costs with

MID-STATES® fast, trouble-free STITCHING WIRE

Boxes and shipping containers of fibre or corrugated materials can be stitched or stapled faster, more dependably with free-flowing Mid-States Stitching Wire. Never clogs stitching head because it has no raw edges; never flakes. Comes in 5, 10, 25 and 50-lb. coils.

Furnished flat and shaped in all standard sizes (special sizes available), with galvanized or coppered finish.

5-lb. Spools Packed 10 Spools per carton.

10-lb. Spools Packed 6 spools per carton.

25-lb. Spools Packed 4 spools per carton.

50-lb. Spools Packed 20 spools per pallet.

STITCHING MACHINES in a variety of models also available from Mid-States. Head sizes range from 12 to 36 in.; capacities up to 375-point (⅜″) board; with Electric Solenoid Trip if desired. Lease or sale agreements available.

ROUND STEEL STRAPPING and MACHINES

For binding and reinforcing bales, bundles or boxes.

Strapping in wide variety of gauges, galvanized or coppered, in quantities from 5 to 500 pounds.

Machines on lease or sale agreements.

WRITE today for further details, catalog sheets, samples and prices.

MID-STATES STEEL & WIRE COMPANY

CRAWFORDSVILLE, INDIANA • JACKSONVILLE, FLORIDA

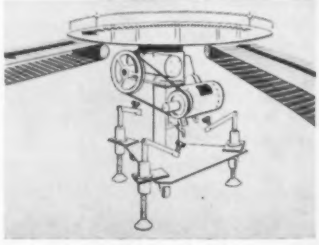
information write: General Electric Co., Dept. PE, X-ray Dept., 4855 W. Electric Ave., Milwaukee, Wis., or *circle number on card.*

3—Heat-Seal Emulsion

Polybond BK-37 is a new heat-seal emulsion which the manufacturer says is heat resistant and especially formulated for high-speed applicators and sealing machines. The announcement reports this is a low-cost emulsion which bonds all types of papers, rough or smooth, including sulfite, kraft, glassine, parchment, wax-laminated glassine, and paperboards. Two coated surfaces bond under heat and pressure. Recommended sealing temperatures range from 250° to 300°F. The high temperature characteristics mean minimum blocking tendency and no cold flow after sealing, according to the manufacturer. The new emulsion is designed to run with minimum foam and build-up on flexographic presses and roller-coater applicators. The emulsion is flash dried with heat after application to the stocks, and average coverage is 1 lb. of solids per 1,000 sq. ft. For more information write: Polymer Industries, Inc., Dept. PE, Springdale, Conn., or *circle number on card.*

4—Transfer Disc

A height-adjustable transfer disc which is mounted on retractable rollers permits moving it to new



locations. Designed to transfer production from one conveyor to another, this new unit can also be used to accumulate items or to assemble finished production

for packaging. After the unit is rolled into position at the intersection of two conveyors, the rollers are retracted, leaving the unit supported on three legs. A crank attachment on each leg is used to raise or lower the transfer disc to meet the height of the conveyors. It can also be adjusted to a tilted position to transfer production between conveyors of different heights. The stainless steel transfer disc is available in diameters up to 48 in. and is powered by a variable-speed motor with V-belt drive. For more information write: Standard Metal Products, Dept. PE, 123 N. Racine Ave., Chicago 7, Ill., or *circle number on card.*

5—Paper Drum

The new all-paper Asphalt Pak is designed to replace metal, or combination metal and fibre-

board, shipping drums. It has a release coating that permits easy tearing of the solid fibre tube from the asphalt at the point of use, the maker claims. The solid fibre tubes and all-kraft bottoms are shipped flat to the user. To prepare the container for filling, the bottom is taped to the tube by an automatic machine. The hot, liquid asphalt is then poured into the leak-proof shipper and after hardening, the filled container can be stacked. For more information write: Owens-Illinois, Paper Products Div., Dept. PE, P.O. Box 1035, Toledo 1, Ohio, or *circle number on card.*

(Turn page)

SECRET FLAVOR...
AND IT'S PROTECTED WITH Patapar®

Habbersett Brothers, Inc., Philadelphia, has used Patapar Vegetable Parchment to protect the flavor of their secret scrapple mixture since the days when the product was sold in 15-pound tins. At that time, the surface cover for the scrapple was pure, tasteless, odorless Patapar.

Now, the handy one-pound and two-pound portions are protected and heat-sealed in packages made of pure, tasteless, odorless Patapar Vegetable Parchment distinctively printed with vegetable inks. The whole air-tight package is machine formed and heat-sealed in seconds.

Habbersett Brothers, Inc., uses a similar type package made of Patapar for their high quality sausage.

To lower packaging costs and assure your customers of consistent product quality, investigate the use of Heat-Sealing Patapar in your packaging operation. Name *your* product and we'll send free samples of the correct Heat-Sealing Patapar.

PATERSON PARCHMENT PAPER COMPANY
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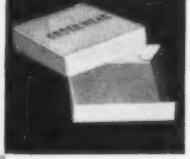
Patapar®
VEGETABLE PARCHMENT

UNIVERSAL
BRIGHTWOOD
BOX MACHINE

QUALITY boxes at lowest cost

In one automatic operation flat printed blanks become perfectly squared, solidly glued boxes for shoes, underwear, corsets, games, candy, etc. — boxes with turned-over ends and finished edges all around, made from double-walled or laminated blanks. Regular glued-end single wall boxes may also be made. A very wide size range can be produced on the one machine.

Write **US** for complete information.



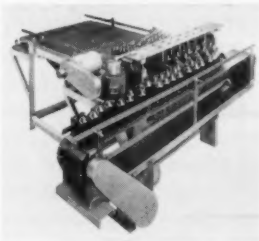
PACKAGING MACHINERY MANUFACTURERS INSTITUTE PMMI MEMBER

U. S. AUTOMATIC BOX MACHINERY CO., INC.

122 ARBORETUM ROAD, ROSLINDALE, BOSTON 31, MASS.
Branch Offices: New York • Chicago
James C. Hale Co., Los Angeles, San Francisco • R. S. Gold, Toronto

6—Unscrambler

The Climax Unimatic single filer is designed to feed glass and metal jars, bottles, and other



containers onto a single-file conveyor for feeding to a filling machine at speeds up to 600 containers/min. This unscrambler incorporates a wire mesh infeed conveyor belt onto which cases of empty containers are inverted and emptied. The belt moves the mass of containers into a 4-lane oscillating head which feeds a single file of containers onto the outfeed conveyor. This machine may also be used to unscramble filled packages and containers. The standard model is designed to handle various sizes of round containers. For more information write: The Lodge & Shipley Co., Climax Products Div., Dept. PE, 3055 Colerain Ave., Cincinnati 25, Ohio, or *circle number on card.*

7—Label Adhesive

Announced is a new adhesive which the maker says possesses superior removability characteristics for pressure-sensitive labels. Called K-6, this new adhesive is available in three stock materials: White Gloss, Flex (a limp label paper with resistance to grease, heat, water, soap, and dilute acids), and WLP (a lightweight paper stock adaptable for curved surfaces). Applications for the removable labels include temporary identification, point-of-purchase signs and labels, price marking, and others. It can also be used as a protective mask for articles such as plastic and glass lenses. The

DU PONT PACKAGING TRENDS

Board stock with gluable coating of ALATHON® prevents oil staining . . . speeds package production

Coating of ALATHON® on overwraps provides fast, reliable heat sealing

A package improvement that preserves the familiar appearance of a well-established product is found in the new overwrap of Lea & Perrins Worcestershire Sauce. Bottles are now marketed in a paper overwrap supplied by Thilmany Pulp & Paper Co. of Kaukauna, Wisconsin. Key to the rapid, automatic packaging process is a thin coating of Du Pont ALATHON on the inside of the wrapper. This coating has eliminated an inconsistent gluing operation used on previous wrapping machinery. Now a fully automatic machine heat-seals the wrapper on the face as well as the ends of the bottles . . . providing smoother appearance and greater durability . . . and an over-all increase in production speed.

Creation of a successful package often depends on the close collaboration of a team of packaging experts who head off trouble before it starts. The package of LOWILA® cake, a specialty skin cleanser, is a case in point. The laboratory of the manufacturer spotted a potential problem: the oil in these detergent cakes tended to penetrate the carton and cause a dark stain. The normal shelf life of six weeks to three months aggravated the problem.

Discussion with the boxboard converter, F. N. Burt, led to the suggestion of poly-coated board as a way of keeping the oil from staining. The converter in turn went to the Lowe Paper Company, which pioneered in gluable coatings of polyethylene. Lowe supplied a clay-coated board with a one-mil coating of gluable polyethylene. The converter used a dextrin adhesive to convert the board at a rate faster than their normal production speed.

The result is a carton that meets the protective needs of the product and provides a glossy, bright inner surface that consumers like.

The polyethylene resin that solved the problem? Du Pont ALATHON 16, one of the wide variety of formulations of polyethylene tailored to meet the specific needs of the packaging industry.

LOWILA® cake manufactured by Westwood Pharmaceuticals, division of the Foster-Milburn Company, Buffalo, N. Y. Boxboard converted by F. N. Burt Co., of Buffalo. Boxboard coated by Lowe Paper Company, Ridgefield, New Jersey.

For additional information on Du Pont ALATHON and the packaging advances it makes possible, mail the coupon below.

Polyolefins Division
POLYCHEMICALS DEPARTMENT

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Du Pont Company, Dept. PE-5
Room 2507A, Nemours Bldg., Wilmington 98, Delaware

Please send me more information on the above application, and additional data on coatings of ALATHON. (A-17684, A-17291)

*Name*_____ *Position*_____

*Firm Name*_____ *Type of Business*_____

*Street Address*_____

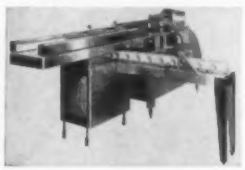
*City*_____ *State*_____

In Canada: Du Pont of Canada Limited, P. O. Box 660, Montreal, Quebec

manufacturer claims that in cold-flow resistance comparisons, this adhesive shows a 30- to 40-per cent improvement over former adhesives and exhibits high resistance to sunlight. For more information write: Avery Label Co., Div. 179, Dept. PE, 1616 S. California St., Monrovia, Calif., or *circle number on card.*

8—Carton Bundler

A redesigned model of an ice cream carton accumulator-bundler packaging machine is avail-



able. Improvements incorporated into this new accumulator-bundler include the opening of the entire top section to provide greater access for cleaning and maintenance, and snap-off guards and housings throughout the machine to facilitate access to all operating mechanisms. Another improved feature is the enclosed paper floor stand which handles mill rolls up to 26 in. in diameter. The new paper floor stand also features an auxiliary roll holder which permits mounting of a fresh roll while the machine is in full operation. A manual splicing operation allows a single operator to feed the new roll into the machine without interrupting production, the manufacturer says. For more information write: Hayssen Mfg. Co., Dept. PE, 13th & St. Claire, Sheboygan, Wis., or *circle number on card.*

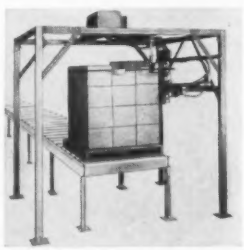
9—Open-Sided Box

Recently introduced was a post-style box utilizing self-locking members to eliminate the need for adhesives, taping, stitching, or stapling. The maker states the triangular corners are capable of supporting more than 1,200 lb. The bottom of the box forms a tray which is open on all sides for quick freezing. Primarily designed for poultry, as many as 18 boxes can be palletized in a

vertical stack. The box consists of a one-piece, die-cut corrugated sheet which forms a rigid tray through self-interlocking members. A telescopic cover fits over the outside. The box can be set up by hand with jigs or with semiautomatic or automatic machines designed for the purpose. For more information write: Consolidated Water Power & Paper Co., Paperboard Products Div., Dept. PE, Wisconsin Rapids, Wis., or *circle number on card.*

10—Automatic Taper

A new automatic load-taping machine can be integrated with all existing or new pallet load-



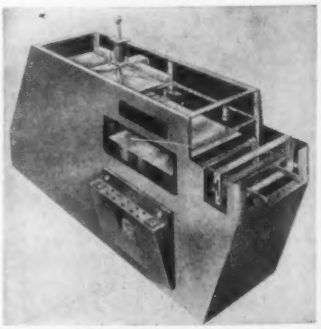
ing systems, automatic or manual, the manufacturer claims. This unit will automatically apply a strip of pressure-sensitive tape (in any width from ¼ to 1½ in.) to the top layer of a unit load, with or without pallet, in 8 sec. Positive taping is accomplished by a mechanical, spring-loaded follower-roller which applies pressure to the tape and against the cases as it circles the load. The tape is then overlapped, cut, and clamped at the end of the cycle. The taper is adjustable for various load sizes and for many types of containers including cartons, cases, cans, and the like. Load capacity range is 40 to 54 in. long, 34 to 48 in. wide, and 28 to 72 in. high. For more information write: Lathrop Paulson Co., Dept. PE, 2459 W. 48th St., Chicago 32, Ill., or *circle number on card.*

11—Cushioned Shipper

A departure from conventional shock-proof packaging design has been announced. Employing the principle of a box cradled within a box, this new box design differs in that the inner box is in suspension. Called the Trapeze box, it is surrounded by a comparatively thin Stanfoam supporting web at the longitudinal or gravitational center and extending from the inner to the outer box. According to the designers, advantage is taken of the self-adhering characteristics of the web material to bond the mass to both corrugated boxes. In operation, the maker states, the package is theoretically a free-swinging mass that is permitted limited rotation with the direction of force. Energy is thus converted from a linear to a rotary motion and the forces of sudden deceleration are absorbed and dissipated over a relatively short travel. These boxes are available in five standard sizes. For more information write: Standard Plastics, Inc., Dept. PE, Fogelsville, Pa., or *circle number on card.*

12—Vacuum Former

A new automatic vacuum former, the Tronomatic 2436, pro-



duces vacuum-formed plastic components for packaging food,

hardware, instruments, and small parts. Plastic material from rolls can be formed in sizes up to 24x36 in. at a rate of three to six complete cycles per min., continuously. This machine has a 6-in. updrape with diffused-zone heating. It is equipped with a pre-vacuum timer and has controlled inches of mercury for vacuum pressure. According to the manufacturer, the machine can handle all thermoplastic films that can be vacuum formed in roll widths from 12 to 36 in. The heater preheats the plastic and moves with it in a horizontal direction through the forming stage. At the same time, the heater moves down to within 2 in. from the film at the forming stage to avoid side drafts. When the plastic material is sufficiently heated, the heater automatically returns to the preheat starting position for the next forming cycle as the updrape table rises. The adjustable clamp frame holding the plastic can be increased by 1-in. increments from 12x12 in. to 24x36 in. to accommodate different forming requirements. This vacuum former can also be equipped for skin package applications. For more information write: Tronomatic Machine Mfg. Co., Dept. PE, 25 Bruckner Blvd., New York 54, N.Y., or *circle number on card.*

13—Food Handling Bin

Introduced is a new one-piece food handling bin made of fiber-

glass-reinforced plastic. These bins can be used for sorting,

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Holds and protects inserted items by the spring-clip action of its fluted partitions. The restricted opening ① and the spaces between ② and beneath ③ are the basic elements of this package that assures safe conveyance and efficient handling. Applications available for many articles of various industries in the medical, cosmetic, electronic, tool, art supply and other fields. Generally for cylindrical or other simple profiles from 5/16" to 1 1/4" in diameter. A Paper Product, Sold at Paper Prices.

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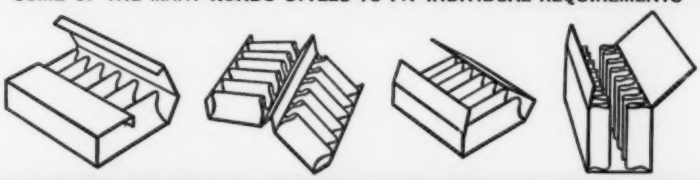

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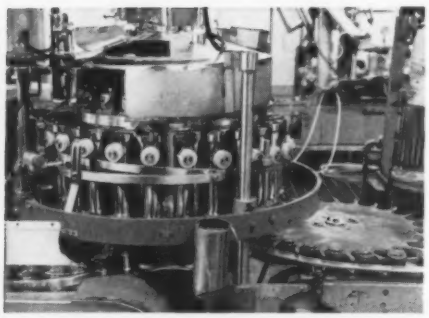

Courtesy Gerber Products Co.

New, higher standards of packaging economy are being realized by processors of a wide variety of products. VOTATOR Piston Fillers give close-tolerance filling of liquids and viscous materials at remarkable speeds. No-container, no-fill controls safeguard against interruption of operation and waste. And, new Magnetic Monitor valve control prevents costly damage and downtime.

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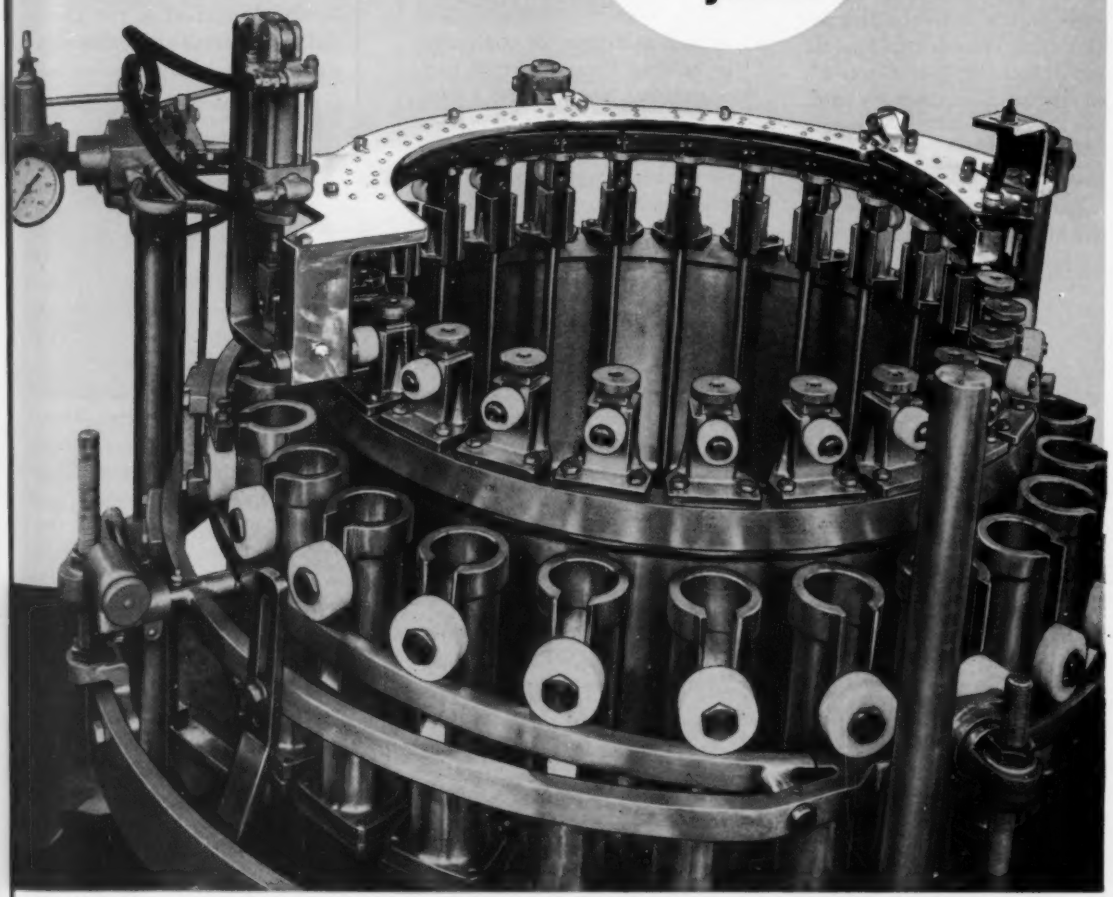
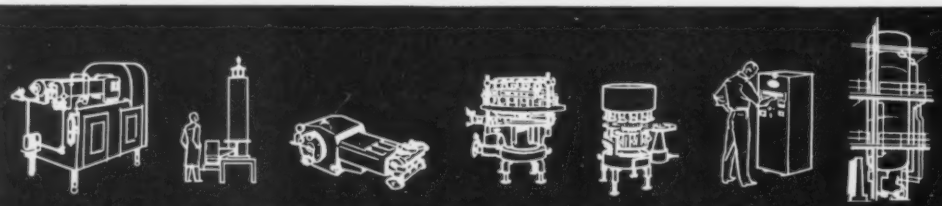


*Trademark †Patent pending



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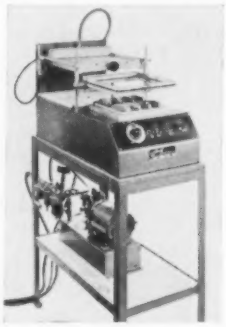
processing, storing, or moving food and other bulk products. Each bin weighs 130 lb. and has a capacity of 260 gal. Neoprene rubber legs give floor clearances of 5, 7½, or 9½ in., and a large valve opening in the bottom provides for drainage. Accessories available for the bins are a dolly, dumping attachment, lid, and seal for the lid. The bins are also available in a 55-gal. size. For more information write: Goodyear Aircraft Corp., Dept. PE-911, Akron 15, Ohio, or *circle number on card.*

14—Thermoforming Machine

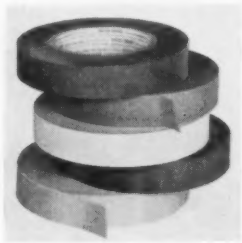
The Comet, Jr. is a new machine designed for small-volume vacuum forming and packaging such



as for sample runs, product designing, cost estimating, and evaluation of materials. The machine will do blister forming, skin packaging, drape and vacuum forming. It features automatic heating, draping, seal off, and application of vacuum. The mold area is 10x10 in., sheet size 11x11 in., sheet thickness 0.001 to 0.125 in., drape stroke 4 in., and heater area 12x12 in. This thermoforming machine comes complete with controls, vacuum system, vacuum regulator, vacuum filter, stand, air regulator, filter, and lubricator. For more information write: Comet Industries, Inc., Dept. PE, 9805 Franklin Ave., Franklin Park, Ill., or *circle number on card.*

15—Colored Tape

Announced is a new line of colored flatback paper packaging tape. Available in five colors, the tape can be used as an identifying or color-coding medium,



as well as a tape for combining or holding items for retail merchandising. The tape has a semigloss surface that can be marked with pencil, ink, marking crayon, or rubber stamp. According to the producer, the tape has a high-strength backing that resists delamination, abrasion, and tearing, and the adhesive prevents slippage and separation in shipping or individual handling. Called Dutch Brand No. 352, this tape is available in 60-yd. standard lengths and in widths of ¼ in. or more. For more information write: Johns-Manville Corp., Dutch Brand Div., Dept. PE, 22 E. 40th St., New York 16, N.Y., or *circle number on card.*

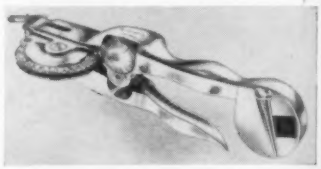
16—Net-Weight Scale

The Speedweigh 3012 is a new 5-lb. capacity net-weight scale for use in checkweighing, filling,

issuing predetermined quantities, and count-by-weight operations. The manufacturer reports this unit is designed to provide more efficient cost control of materials by eliminating repeated small weighing errors. The scale has a weight sensitivity of 1/64 oz. and an indicator travel (regularly) of 1 in./oz. The scale is available with side, end, or 45-degree indicator tower. This portable scale has dimensions of 17⅝x7¼x16 in. For more information write: Toledo Scale, Div. of Toledo Scale Corp., Dept. PE, Toledo 12, Ohio, or *circle number on card.*

17—Tape Embosser

Newly developed is the Dymo Mite Tapewriter—a hand embossing tool for labeling and identi-



fication. To operate the tool, the desired letters are dialed, and the handle is pressed to emboss Dymo vinyl tapes or metal tapes. A cut-off blade trims the finished label to the exact size. Raised letters and/or numbers can be made on the pressure-sensitive label tapes, which come in a variety of colors for color coding. The tapes are also available without adhesive backing. The embossed label has white raised letters on a colored background. The manufacturer claims the tool offers a quick, economical way to make embossed high-contrast labels for many applications. For more information write: Dymo Industries, Inc., Dept. PE, 2725 Tenth St., Berkeley 10, Calif., or *circle number on card.*

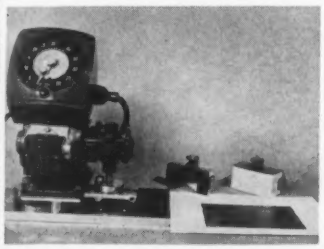
18—Plastic Bag Maker

The new Model 108 bag making machine can turn out bags of printed or unprinted material measuring 3x3 up to 54x70 in. at speeds in excess of 120 cycles per min., the manufacturer reports. The 56-in. width of this machine offers high production of bags through the use of multiple webs of material and features both side-weld and bottom-seal of bags and liners. A new aluminum sealing bar assembly

provides constant heat throughout the entire sealing surface. This new assembly is a plug-in attachment which can be changed in minutes, according to the manufacturer. A heat control attachment provides sealing bar temperatures from ambient to 700°F. For more information write: G. T. Schjeldahl Co., Dept. PE, Northfield, Minn., or *circle number on card.*

19—Ink Rub Tester

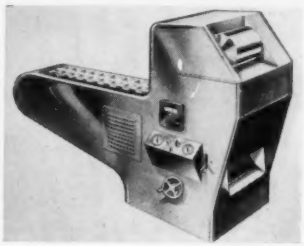
TMI has announced the availability of the Sutherland ink rub tester for evaluating the scuff-



ing and rubbing resistance of an ink film on paper and paperboard. Dry rub, wet rub, wet bleed or transfer, wet smear, and functional rub tests can be made with this equipment. Because few inks will pass rubbing, wet or dry, without a slight transfer of color, this unit is designed for making comparative tests so that the suitability of an ink can be determined. For more information write: Testing Machines, Inc., Dept. PE, 72 Jericho Turnpike, Mineola, New York, or *circle number on card.*

20—Blister Packager

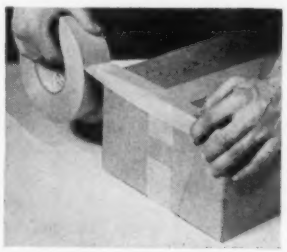
The Pac-O-Vac 2400 forms, fills, and seals a package automatically. This machine forms a blister from a strip of thermoplastic film fed from roll stock. The product to be enclosed is placed in the blister either manually or automatically by means of a feeding device. The strip of filled blisters is sealed to a backing material and cut off into single or pre-counted multiple packages. The manufacturer of the machine states that most thermoplastic films may be used and that the transparent pack-



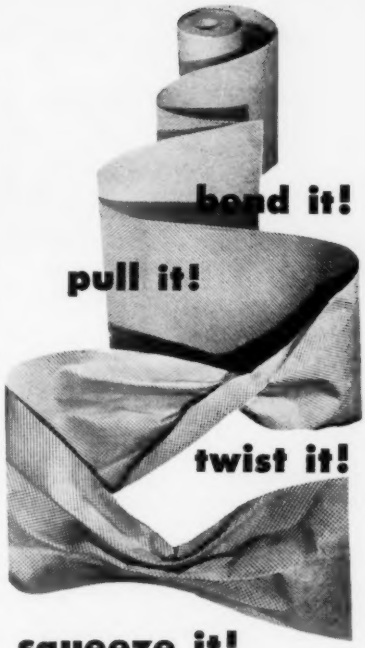
age provides sealed protection for delicate components or small precision parts. The backing (sealing) material may be printed on both sides. For more information write: Product Packaging Engineering, Dept. PE, 5713 Joanne Pl., Culver City, Calif., or *circle number on card.*

21—Sealing Tape

A new shipping case sealing tape, called Mystik Brand No. 6376, is said by the maker to



have a quick gripping action which permits extra speed in packaging. This tape has a pressure-sensitive adhesive and a paper backing reinforced with rope fibers that provide high tensile strength under both wet and dry conditions. The tape was designed to meet the requirements of government specification PPP-T76 for overseas shipments. According to the maker, this tape is especially adapted for sealing fibreboard containers which must withstand rough handling and resist both weather and wear. For more information write: Mystik Adhesive Products, Inc., Dept. PE, 2635 N. Kildare Ave., Chicago 39, Ill., or *circle number on card.* *(End)*



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101—Clamp Fasteners

A 16-page booklet tells about packaging with Klimp fasteners which are spring clamps that replace nails in panel box and crate assembly. Various applications and features are pointed out. To obtain this booklet write: Navan Products, Inc., Dept. PE, 900 N. Sepulveda Blvd., El Segundo, Calif., or *circle number on card.*

102—Polyurethane Foam

Two technical bulletins (PF-3 and PF-3a) suggest rigid polyurethane foam systems for 1¼ and 1¾ lb./cu. ft. densities. Information on preparation procedures, applications, properties, and other technical data are given. For additional details write: Reichhold Chemicals, Inc., Dept. PE, R.C.I. Bldg., White Plains, N.Y., or *circle number on card.*

103—Closing Machine

A preliminary bulletin has been published describing the Amfast casing and bag fastening machine. The unit is portable and places an aluminum clip closure on all shrinkable types of film and natural casings. For further information write: The American Fastener Corp., Dept. PE, Manasquan, N.J., or *circle number on card.*

104—Polyethylene Film

A printed sample bag of Opti-Clear cast polyethylene film is available. Gauges range from 0.001 to 0.003 in., the film density is 0.928, and it has a haze factor of less than 3 per cent. For more information write: Extrudo-Film Corp., Dept. PE, 1841 Broadway, New York 23, N.Y., or *circle number on card.*

105—Wrapper, Sealer

Information is available on an all-purpose, table-top wrapping and sealing unit for produce, cheese, meat, and poultry. It is a self-contained station for sleeve-, bag-, or over-wrapping from rolls of thermoplastic film. For additional information on this unit and a complete catalog of Dove prepackaging equipment write: J. B. Dove and Sons, Inc., Dept. PE, P.O. Box 5, Bristol, Pa., or *circle number on card.*

106—Electronic Sealing

Technical Bulletin No. 420 explains the process of electronic heat sealing of vinyl film and sheeting and why the material must be electronically non-conductive. The bulletin tells how electronically-sealable vinyl gravure inks were developed and lists those available. To get this bulletin write: Claremont Pigment Dispersion Corp., Dept. PE, 39 Powerhouse Rd., Roslyn Heights, L.I., N.Y., or *circle number on card.*

107—Aerosol Packaging

A 12-page booklet has been published as a guide to aerosol packaging. Points to be considered in evaluating a new product for aerosol use are discussed and various filling processes are outlined. For a copy of the booklet write: Sprayon Products, Inc., Dept. PE, 2075 E. 65th St., Cleveland 3, Ohio, or *circle number on card.*

108—Carton Former

A 4-page brochure describes and illustrates the Model FM-60 Crandall automatic carton forming machine. The specifications, phases of operation, features, and styles of cartons are given. For a copy of this brochure write: Fulton Machine Co., Dept. PE, 16 N. Morgan St., Chicago 7, Ill., or *circle number on card.*

109—Force Transducers

A 4-page brochure presents information on force transducers. These units are force-sensing, primary elements for continuous measurement and control of tension, pressure, weight, and thrust. Applications, features, and design details are stated and illustrated. For this brochure write: Hydro-Pneu-Tronics, Force Transducer Sales Div., Dept. PE, 3666 E. 116th St., Cleveland 5, Ohio, or *circle number on card.*

110—Specialty Papers

A 12-page brochure describes a number of technical and industrial specialty papers. Adding cork, glass, carbon, plastics, and other materials to obtain the desired results for a number of papers are discussed and applications given. For more information write: Knowlton Brothers, Dept. PE, Watertown, N.Y., or *circle number on card.*

111—Coding Attachments

An illustrated, 4-page bulletin describes the Series 19 Ink-O-Matic coders which feature a one-unit inker. The inking roller is made of a microporous plastic material that combines the ink supply and transfer in one structure. For a copy of the bulletin write: Bell-Mark Corp., Dept. PE, 18 Ropes Pl., Newark 7, N.J., or *circle number on card.*

112—Automatic Thermoforming

A continuous, automatic forming, indexing, and cutting machine is described in an information sheet. Called the Pak-Master, the thermoforming machine produces blisters 5 in. deep at a rate of 14 sq. ft./min. For more details write: Auto-Vac Co., Dept. PE, 450 Kings Highway Cutoff, Fairfield, Conn., or *circle number on card.*

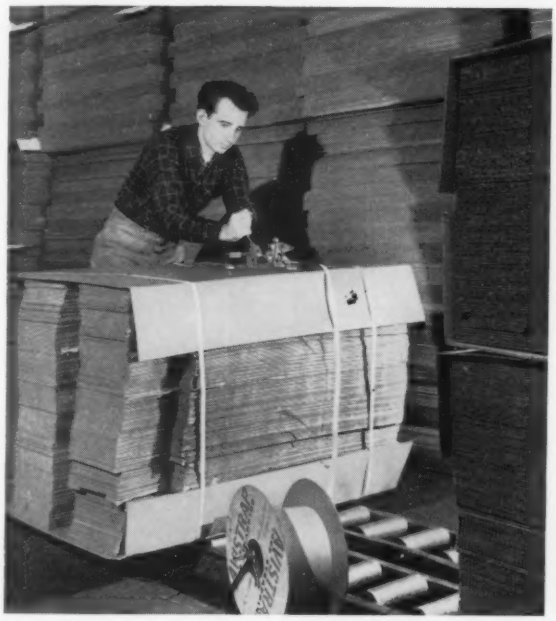
113—Packaging Abstracts

PACKAGE ENGINEERING magazine is offering a data sheet describing *Packaging Abstracts*, a monthly publication which abstracts articles about packaging from some 200 magazines from all over the world. Each issue is divided into 18 sections of topics pertaining to raw materials, adhesives, coating treatments, shipping containers, etc. For more information write: Package Engineering, Dept. PE, 185 N. Wabash, Chicago 1, Ill., or *circle number on card.*

114—Cartons

A booklet, "Weyerhaeuser Ingenuity At Work In Packaging," presents the

Weyerhaeuser Company gets minimum marring, maximum safety by securing container shipments with AVISTRAP® CORD STRAPPING



Tensions without cutting. Flexibility of AVISTRAP allows tensioning around corners with minimum crushing. Absence of sharp edges eliminates cutting. Corner protectors are seldom needed. Because of these advantages, Weyerhaeuser uses AVISTRAP to hand-strap 500-lb. to 1,000-lb. shipping units of knocked-down containers.

Safe and easy to handle. Coil of ⅝" AVISTRAP containing 1,000 yds. weighs only 20 lbs., is easily carried wherever needed. AVISTRAP is safe to tension, will not cut hands. AVISTRAP also requires minimum storage space. Photos made at Delair, N. J., plant of Weyerhaeuser Shipping Container Division.

AVISTRAP®
CORD STRAPPING*

*Patents pending.

New convenience and safety for your plant and your customers

Unlike metal strapping materials, AVISTRAP will not lash out with jagged ends if broken. It is extremely tough, able to absorb shocks which snap metal strapping of the same width. Yet AVISTRAP is easy for customers to remove from packages, and causes no disposal problems. Its light weight—never more than ¼ the weight of metal strapping—is an advantage in shipping. And AVISTRAP will not mar goods during shipment, will not cut handlers' hands, will not snag truck floors or other packages.

AVISTRAP is available from local distributors, in a range of sizes, along with all necessary tools and accessories. To arrange a demonstration in your plant, or to request specific application information, contact Industrial Packaging Department, American Viscose Corporation.

AMERICAN VISCOSE CORPORATION, INDUSTRIAL PACKAGING DEPT., 1617 PENNSYLVANIA BLVD., PHILA. 3, PA.

District offices: Atlanta, Ga., Boston, Mass., Charlotte, N.C., Chicago, Ill., Columbus, Ohio, Dallas, Tex., Denver, Colo., Los Angeles, Calif., New Orleans, La., New York, N.Y.

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For your convenience, we have also included addresses of suppliers so that you may write directly for more information.

101—Clamp Fasteners

A 16-page booklet tells about packaging with Klimp fasteners which are spring clamps that replace nails in panel box and crate assembly. Various applications and features are pointed out. To obtain this booklet write: Navan Products, Inc., Dept. PE, 900 N. Sepulveda Blvd., El Segundo, Calif., or *circle number on card.*

102—Polyurethane Foam

Two technical bulletins (PF-3 and PF-3a) suggest rigid polyurethane foam systems for 1¼ and 1¾ lb./cu. ft. densities. Information on preparation procedures, applications, properties, and other technical data are given. For additional details write: Reichhold Chemicals, Inc., Dept. PE, R.C.I. Bldg., White Plains, N.Y., or *circle number on card.*

103—Closing Machine

A preliminary bulletin has been published describing the Amfast casing and bag fastening machine. The unit is portable and places an aluminum clip closure on all shrinkable types of film and natural casings. For further information write: The American Fastener Corp., Dept. PE, Manasquan, N.J., or *circle number on card.*

104—Polyethylene Film

A printed sample bag of Opti-Clear cast polyethylene film is available. Gauges range from 0.001 to 0.003 in., the film density is 0.928, and it has a haze factor of less than 3 per cent. For more information write: Extrudo-Film Corp., Dept. PE, 1841 Broadway, New York 23, N.Y., or *circle number on card.*

105—Wrapper, Sealer

Information is available on an all-purpose, table-top wrapping and sealing unit for produce, cheese, meat, and poultry. It is a self-contained station for sleeve-, bag-, or over-wrapping from rolls of thermoplastic film. For additional information on this unit and a complete catalog of Dove prepackaging equipment write: J. B. Dove and Sons, Inc., Dept. PE, P.O. Box 5, Bristol, Pa., or *circle number on card.*

106—Electronic Sealing

Technical Bulletin No. 420 explains the process of electronic heat sealing of vinyl film and sheeting and why the material must be electronically non-conductive. The bulletin tells how electronically-sealable vinyl gravure inks were developed and lists those available. To get this bulletin write: Claremont Pigment Dispersion Corp., Dept. PE, 39 Powerhouse Rd., Roslyn Heights, L.I., N.Y., or *circle number on card.*

107—Aerosol Packaging

A 12-page booklet has been published as a guide to aerosol packaging. Points to be considered in evaluating a new product for aerosol use are discussed and various filling processes are outlined. For a copy of the booklet write: Sprayon Products, Inc., Dept. PE, 2075 E. 65th St., Cleveland 3, Ohio, or *circle number on card.*

108—Carton Former

A 4-page brochure describes and illustrates the Model FM-60 Crandall automatic carton forming machine. The specifications, phases of operation, features, and styles of cartons are given. For a copy of this brochure write: Fulton Machine Co., Dept. PE, 16 N. Morgan St., Chicago 7, Ill., or *circle number on card.*

109—Force Transducers

A 4-page brochure presents information on force transducers. These units are force-sensing, primary elements for continuous measurement and control of tension, pressure, weight, and thrust. Applications, features, and design details are stated and illustrated. For this brochure write: Hydro-Pneu-Tronics, Force Transducer Sales Div., Dept. PE, 3666 E. 116th St., Cleveland 5, Ohio, or *circle number on card.*

110—Specialty Papers

A 12-page brochure describes a number of technical and industrial specialty papers. Adding cork, glass, carbon, plastics, and other materials to obtain the desired results for a number of papers are discussed and applications given. For more information write: Knowlton Brothers, Dept. PE, Watertown, N.Y., or *circle number on card.*

111—Coding Attachments

An illustrated, 4-page bulletin describes the Series 19 Ink-O-Matic coders which feature a one-unit inker. The inking roller is made of a microporous plastic material that combines the ink supply and transfer in one structure. For a copy of the bulletin write: Bell-Mark Corp., Dept. PE, 18 Ropes Pl., Newark 7, N.J., or *circle number on card.*

112—Automatic Thermoforming

A continuous, automatic forming, indexing, and cutting machine is described in an information sheet. Called the Pak-Master, the thermoforming machine produces blisters 5 in. deep at a rate of 14 sq. ft./min. For more details write: Auto-Vac Co., Dept. PE, 450 Kings Highway Cutoff, Fairfield, Conn., or *circle number on card.*

113—Packaging Abstracts

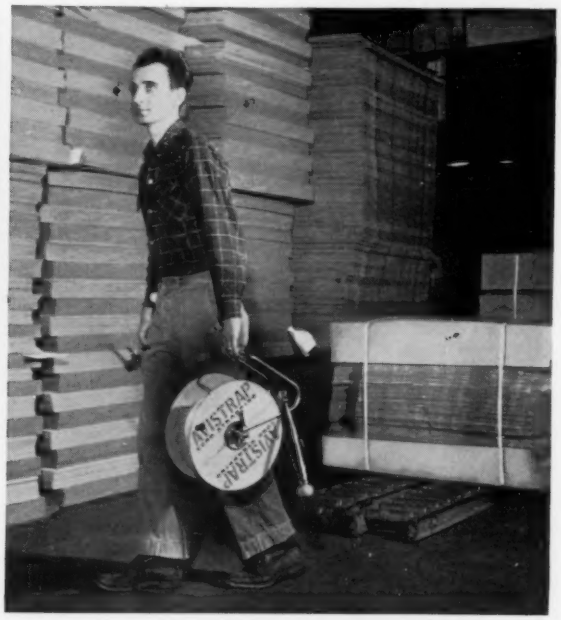
PACKAGE ENGINEERING magazine is offering a data sheet describing *Packaging Abstracts,* a monthly publication which abstracts articles about packaging from some 200 magazines from all over the world. Each issue is divided into 18 sections of topics pertaining to raw materials, adhesives, coating treatments, shipping containers, etc. For more information write: Package Engineering, Dept. PE, 185 N. Wabash, Chicago 1, Ill., or *circle number on card.*

114—Cartons

A booklet, "Weyerhaeuser Ingenuity At Work In Packaging," presents the

Weyerhaeuser Company gets minimum marring, maximum safety by securing container shipments with AVISTRAP® CORD STRAPPING

Tensions without cutting. Flexibility of AVISTRAP allows tensioning around corners with minimum crushing. Absence of sharp edges eliminates cutting. Corner protectors are seldom needed. Because of these advantages, Weyerhaeuser uses AVISTRAP to hand-strap 500-lb. to 1,000-lb. shipping units of knocked-down containers.



Safe and easy to handle. Coil of 5/8" AVISTRAP containing 1,000 yds. weighs only 20 lbs., is easily carried wherever needed. AVISTRAP is safe to tension, will not cut hands. AVISTRAP also requires minimum storage space. Photos made at Delair, N. J., plant of Weyerhaeuser Shipping Container Division.

AVISTRAP®
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*Patents pending.

New convenience and safety for your plant and your customers

Unlike metal strapping materials, AVISTRAP will not lash out with jagged ends if broken. It is extremely tough, able to absorb shocks which snap metal strapping of the same width. Yet AVISTRAP is easy for customers to remove from packages, and causes no disposal problems. Its light weight—never more than ¼ the weight of metal strapping—is an advantage in shipping. And AVISTRAP will not mar goods during shipment, will not cut handlers' hands, will not snag truck floors or other packages.

AVISTRAP is available from local distributors, in a range of sizes, along with all necessary tools and accessories. To arrange a demonstration in your plant, or to request specific application information, contact Industrial Packaging Department, American Viscose Corporation.

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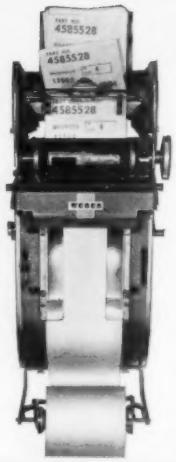

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research and production facilities offered by this company. For more information write: Weyerhaeuser Co., Boxboard & Folding Carton Div., Dept. PE, 919 N. Michigan Ave., Chicago 11, Ill., or *circle number on card.*

115—Neck-Seal Applicator

A catalog on Sealamatic machines for automatic application of pre-cut cellulose neck bands and other types of closure equipment is available. For more information write: Gisholt Machine Co., Dept. PE, 1245 E. Washington Ave., Madison 10, Wis., or *circle number on card.*

116—Gummed Tape Tips

Two folders list suggestions for getting best results from gummed and reinforced gummed sealing tapes. For more information write: Gilman Paper Co., Dept. PE, 630 Fifth Ave., New York 20, N.Y., or *circle number on card.*

117—Plastic Boxes

A 16-page catalog is available on Bradley's line of rigid plastic boxes. Custom-molded plastic containers are available and illustrations, sizes, colors, and prices of standard stock boxes are given. For a copy write: Bradley Industries, Dept. PE, 1650 N. Damen Ave., Chicago 47, Ill., or *circle number on card.*

118—Film Resin

Information on Marlex TR-101 resin is provided in a file. This olefin polymer resin for extrusion into film is suited for packaging bulk products and for non-bag applications. For more information write: Phillips Chemical Co., (Subsidiary of Phillips Petroleum Co.), Dept. PE, Bartlesville, Okla., or *circle number on card.*

119—Paper, Chipboard Partitions

A 4-page brochure pictures a variety of paper and chipboard partitions and die-cuts. Special designs are available for machine parts, electronic and automotive parts, pharmaceuticals, etc. For a copy of this brochure write: W. J. Bradford Paper Co., Dept. PE, 301 W. 16th St., Holland, Mich., or *circle number on card.*

120—Valve Bag Packer

Literature is available on the Black Diamond airflow 2-tube valve bag packer. Unit uses fluidizing principle of conveying free-flowing dry, granular, and powdered materials. For more information write: Black Products Co., Dept. PE., 13513 Calumet Ave., Chicago 27, Ill., or *circle number on card.*

121—Pallet Covers

Offered are sample sheets of paper and plastic materials used in fabricating pallet covers for protection against dust, dirt, moisture, water, and pilferage. To receive these samples write: Kennedy Car Liner & Bag Co., Inc., Dept. PE, 6000 Prospect Ave., Shelbyville, Ind., or *circle number on card.*

122—Humidity Indicators

The new Humi-Card No. 693470 is a humidity indicator card for general packaging use. Various types are available which meet military specifications. They are described in Product Catalog No. C-1. For more information write: Culligan, Inc., Dept. PE, 1657 Shermer Rd., Northbrook, Ill., or *circle number on card.*

123—Blister Sealer

Available is a data sheet on the Clear-Pak Jr. plastic blister sealing machine. Designed for fast production of short-run items, it has a sealing area of up to 6x9 in. For more information write: Erdco Engineering Co., Dept. PE, Addison, Ill., or *circle number on card.*

124—Package Sterilization

A 12-page booklet outlines a program on package sterilization. Methods covered are steam, dry heat, and gas sterilization, and recommendations on which method to use are given for a number of products. For more information write: Wilmot Castle Co., Div. of The Ritter Co., Dept. PE, 400 West Ave., Rochester, N.Y., or *circle number on card.*

125—Conveyor Chains

An illustrated brochure is being offered to show the features of a conveyor chain for automated packaging operations for foods and beverages. For more information write: Diamond Chain Co., Inc., Dept. PE, 402 Kentucky Ave., Indianapolis 7, Ind., *or circle number on card.*

126—Polyethylene Film

A comparative film property data sheet has been published. Poly-Eth Hi-D 2504 is compared with conventional density polyethylene for general characteristics of polyethylene films. For more information write: Spencer Chemical Co., Dept. PE, Dwight Bldg., Kansas City 5, Mo., or *circle number on card.*

127—Release Paper

Details, specifications and a sample are available of Stick-Not, a release paper with silicone coating. It is available in rolls up to 83 in. wide and in special types for specific requirements. For this literature write: Crocker, Burbank Papers, Inc., Dept. PE, Fitchburg, Mass., or *circle number on card.*

128—Automatic Case Packer

A brochure describes a case packer that is air operated and electrically controlled. Machine handles jars, bottles, cans, or flasks of glass, metal, plastic, or paper. For more information write: Miller Hydro Co., Dept. PE, Bainbridge, Ga., or *circle number on card.*

129—Cloth Tapes

Descriptive literature is offered on Polyken tapes. The tapes feature a cloth backing material with a pressure-sensitive adhesive. Properties are outlined for the No. 110 and No. 113 tapes. For more information write: The Kendall Co., Polyken Div., Dept. PE, 222 W. Adams St., Chicago 6, Ill., or *circle number on card.*

130—Corrosion Inhibitor Papers

A 75-page catalog on inhibitor papers for prevention of corrosion and tarnish of ferrous and non-ferrous metals is offered. Charts, case histories, glossary of terms, and a set of samples are included. For more information write: Orchard Paper Co., Dept. PE, 3914 Union Blvd., St. Louis 15, Mo., or *circle number on card.*

131—Bag Palletizer

An illustrated bulletin provides information on the operation of an automatic bag palletizer. Requiring no operator, the unit was specifically engineered to cut production costs in two- and three-shift plants which package products in multiwall bags. It automatically loads bags on wood, metal, or paper pallets. For further information write: Miller Engineering Corp., Dept. PE, 119-C E. Barbee Ave., Louisville, Ky., or *circle number on card.*

132—Cushioning Material

Available is a brochure on the variety of applications for Edg-Pak cushioning material. Included is a sample and cutaway diagram showing its design and performance properties. For more information write: Flex-O-Lators, Inc., Edg-Pak Div., Dept. PE, Carthage, Mo., or *circle number on card.*

133—Automatic Vial Fillers

An 8-page catalog lists specifications and prices for five basic models of automatic pipetting machines. These units dispense accurately measured volumes of fluids and are especially suitable where aseptic handling is required. Aqueous, as well as highly viscous, solutions and suspensions can be processed. Machines are designed to fill ampuls, vials, small-necked bottles. For this catalog write: Baltimore Biological Laboratory, Inc., Div. of Becton, Dickinson & Co., Dept. PE, 2201 Aisquith, Baltimore 18, Md., or *circle number on card.*

134—Collapsible Metal Tubes

A 16-page booklet presents a line of collapsible metal tubes. It explains the metals, coatings, and finishes used and enumerates tube sizes, openings, caps, and applicator pipes available. For more information write: Standard Collapsible Tube Co., Dept. PE, Connecticut Ave., Box 271, Rochester, Pa., or *circle number on card.*

135—Polyester Film Data

Brochure P-KSPFR (191) Jr. gives technical data on Scotchpak brand heat-sealable polyester films. A wide variety of end uses are illustrated, including a new barrier material. One page of the brochure is devoted to a comprehensive properties and characteristics chart. For further information write: Minnesota Mining & Mfg. Co., Film Products Group, Dept. PE, 900 Bush Ave., St. Paul 6, Minn., or *circle number on card.*

(Turn page)

Stop costly overweights and save on packaging labor with the right model of Gump Packaging Equipment. Speedy, highly accurate Bar-Nun "Auto-Check" and Edtbauer-Duplex Weighers (illustrated) for manual lines. Automatic Bar-Nun Bag Packaging Equipment, and Can, Jar or Carton Lines save on packaging labor as well as product. Extremely dependable operation—accuracy guaranteed.

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MODEL B-49 STRAIGHTLINE VACUUM FILLER
Fills 4 to 9 containers simultaneously. Lever engages and disengages filling stems, otherwise operation is automatic. Adjustable for container heights up to 14". Stainless steel construction; plastic available. Discharge conveyor optional. Write for "Bulletin B-49."

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- *Fully Automatic*
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YOU CAN spark your entire packaging operation with the right filler. Anything short of that can snarl your packaging pace. With a half century of experience in liquid filling, our engineers can specify filling procedure that will head your packaging operation most economically. Our recommendations will not obligate you. Please send sample of product, a dozen containers of each size to be filled and advise desired filling rate per minute, hour or day. Address our home office.

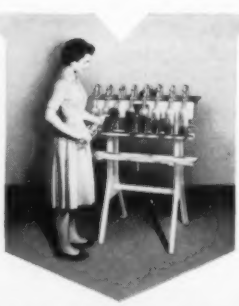
Steady Filling

MODEL B-2 VACUUM FILLER. Fills 2 containers while 2 filled containers are being removed and 2 empties loaded. Thus, filling is continuous. Handles containers up to 4½" dia., up to 13" high. Stainless steel construction. Plastic available. Portable. Filling is fast, efficient. Write for "Bulletin B-2."

For All Liquids All Containers

Also for foamy products that do not permit agitation. Stainless steel filling tubes. Fill controlled automatically. Glass lined tank. No power required. Product supply regulated. Write for "Siphon Bulletin."

Hand Filler. A precision unit of high quality for efficient filling. Write for "Hand Filler Bulletin."



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A message to

Package research and development departments
Engineering departments
Technical & research libraries
Everyone concerned with what is being written in the world of packages

We recently were appointed American agents for Packaging Abstracts, published by the British research association PATRA—The Printing, Packaging & Allied Trades Research Association. This service gives you in a single, handy periodical (5½x8½ in., averaging 75 pages a month, plus the annual index), brief summaries of packaging articles that have appeared in some 200 packaging magazines plus over 150 magazines devoted to printing and allied subjects, and numerous patents, books, pamphlets, and technical data provided by makers of machinery and materials. An average issue carries about 400 abstracts based on literature received from all parts of the world.

Examine It 10 Days Free

Mail the coupon to us and we will mail you a sample copy of the current issue. You may return it in 10 days and you owe us nothing. If you keep it, we will mail you subsequent issues and the annual index as they come off the press, and bill you $42.00 for a one-year subscription.

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136—Heat-Seal Packer

Model 50A Packmaster is described in a circular. Unit will form packages ranging in size from 2 to 8 in. wide and 2 to 16 in. long from heat-sealable foils, films, or paper. It can be set up for either manual or automatic operation. For more information write: Sundstrand-American Broach, Div. of Sundstrand Corp., Dept. PE, Ann Arbor, Mich., or *circle number on card.*

137—Stretchable Paper

A folder outlines the advantages of Clupak, a stretchable paper, and some applications. Also included is a description of how the stretchability is built into the paper. For more information write: Clupak, Inc., Dept. PE, 530 Fifth Ave., New York 36, N.Y., or *circle number on card.*

138—SPHE Membership

Two pamphlets have been released to report on advantages of membership in the Society of Packaging and Handling Engineers. These pamphlets explain the purpose, organization, activities, and requirements for membership in this professional society. For copies of this literature write: Society of Packaging & Handling Engineers, Dept. PE, 14 E. Jackson Blvd., Chicago 4, Ill., or *circle number on card.*

139—Skin Packaging

"Skin Packaging For Industry" is a general discussion of the technique of thermoforming a transparent plastic film over a product to an uncoated printed board in one machine operation. For more information write: Textile-Kraft Products Co., Dept. PE, 126 N. Jefferson St., Milwaukee 2, Wis., or *circle number on card.*

140—Packaging Services

A 26-page booklet discusses research, engineering, and field services for food packers. Also described are production aids such as unscramblers, transfer discs, head spacers, coders, air cleaners, etc. For more information write: White Cap Co., Dept. PE, 1819 N. Major St., Chicago 39, Ill., or *circle number on card.*

141—Single-Face Corrugated

A folder on the uses of single-face corrugated for both internal and external protective packaging is being offered. Also included is a table of standard stock combinations and descriptions of printed, scored, waxed, and prefabricated varieties. For more information write: Sherman Paper Products Corp., Dept. PE, Newton Upper Falls 64, Mass., or *circle number on card.*

142—Cartoning Equipment

Different types of products and containers are shown being cartoned or packed in cases on the various types of machinery illustrated in a 19-page booklet. Both automatic and semi-automatic equipment is described. For more information write: R. A. Jones & Co., Inc., Dept. PE, P.O. Box 485, Cincinnati 1, Ohio, or *circle number on card.*

143—Thermal Impulse Sealer

A 12-page brochure has been published illustrating the advantages of thermal-impulse heat sealers. Types of film sealable by this process are listed. Models of a number of such units are pictured and dimensions given. For more information write: Vertrod Corp., Dept. PE, 2037 Utica Ave., Brooklyn 34, N.Y., or *circle number on card.*

144—Poultry Packaging

A 4-page folder discusses the Poultry Products Inspection Act and presents comments concerning the effect of this Act on paper and poultry. The wrapping, handling and identification of poultry products are viewed. For further information write: Riegel Paper Corp., Dept. PE, 260 Madison Ave., New York 16, N.Y., or *circle number on card.*

(Turn page)

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Wide Range of Styles and Sizes To Meet Your Requirements

Write, wire or phone for a free copy of Product Memo #112 illustrating and describing the many types of ELLISCO cans available to meet your specific needs. More than 100 years of metal working experience are at your service—to save you money, provide ease of packing, reliability in handling and convenience in use.

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Please include payment with order. Contact our Reader Service Department.

PACKAGE engineering
185 North Wabash Avenue, Chicago 1, Illinois

145—Urethane Foam Cushioning

A 20-page booklet reviews the details of urethane foams. Properties and performance features are illustrated and described, and the range of applications is outlined. For this review write: Mobay Chemical Co., Dept. PE, Penn Lincoln Pkwy. West, Pittsburgh 5, Pa., or *circle number on card.*

146—Glass Coating

A digest of facts about Ball all-purpose coating for glass containers is available. Descriptions and results of laboratory tests are presented. For more information write: Ball Brothers Co. Inc., Dept. PE, 1509 Macedonia Ave., Muncie, Ind., or *circle number on card.*

147—Short Case Sealer

A 4-page brochure on the Model XSA short case sealer for corrugated containers is offered. This compact machine is adjustable to a range of box sizes and optional features may be incorporated. To obtain this brochure write: A-B-C Packaging Machine Corp., Dept. PE, P.O. Box 1146, Clearwater, Fla., or *circle number on card.*

148—Plastic Vials

A leaflet lists various stock sizes of plastic transparent vials produced by this company. A variety of types of containers are available in minimum quantities of 1,000 and sizes range from ½x2 in. to 1x4 in. For more information write: Lermer Plastics, Inc., Dept. PE, 540 South Ave., Garwood, N.J., or *circle number on card.*

149—Metal Edged Boxes

A brochure is of specific interest to the pharmaceutical industry. It outlines the advantages that Metal Edge boxes offer in sending samples of pharmaceutical products to physicians and describes how this method can effect savings. For a copy of this brochure write: Metal Edge Industries, Dept. PE, Barrington, N.J., or *circle number on card.*

150—Packaging Films

A 14-page booklet contains complete specifications for this firm's standard films, including general, bread wrap, overwrap, and high-impact films. The booklet also contains information on packaging and marking specifications, schematic drawings that illustrate roll put-up, charts and formulas for calculating yield, and standards for all its films. For this information write: Chippewa Plastics Co., Div. of Rexall Drug & Chemical Co., 1701 First Ave., Chippewa Falls, Wis., or *circle number on card.*

151—Polypropylene

A technical booklet has been released on Pro-fax polypropylene. Physical characteristics, chemical resistance, and fabrication information is given, supplemented with tables, charts, and photos. A bibliography of information on polypropylene is included describing the various types of this material. For more information write: Hercules Powder Co., Dept. PE, Cellulose Products Dept., 9th and Market St., Wilmington 99, Del., or *circle number on card.*

152—Automatic Butter Wrapper

An 8-page illustrated catalog describes machines for the automatic precutting, printing, forming, wrapping, cartoning, and overwrapping of butter, margarine and similar products. For a copy of this descriptive catalog write: Lynch Corp., Dept. PE, Anderson, Ind., or *circle number on card.*

153—Packaging Knives

For use in packaging machines and other industrial applications, a line of knives is discussed in an illustrated folder. Shapes and composition of the knives are considered as well as special applications. For more information write: Coes Knife Co., Dept. PE, 62 Coes St., Worcester, Mass., or *circle number on card.*

154—Wrap-Around Cartoner

Literature is available on automatic packaging machinery which starts with a supply of flat, precut, and scored carton stock and builds the container around the product, seals it, and automatically palletizes them. For more information write: Metro Tool & Engineering Corp., Dept. PE, 3301 E. 26th St., Minneapolis 6, Minn., or *circle number on card.*

155—Stencil-Cutting Machines

A folder on stencil cutting machines is available. Four machines are shown in seven letter sizes. Letter sizes range from ¼ in. high (48 characters/in.) to the Jumbo machine that cuts letters 1¾ in. high. For more information write: Diagraph-Bradley Industries, Inc., Dept. PE, P.O. Box 269, Herrin, Ill., or *circle number on card.*

156—Making Beer Bottles

A 24-page booklet shows how beer bottles are made at its glass plants. The booklet, "How a Better Beer Bottle Is Made," begins with the dredging of sand, through the glass forming machines, to the shopping point. For a copy of this booklet write: Armstrong Cork Co., Packaging Materials Div., Dept. PE, Lancaster, Pa., or *circle number on card.*

(End)

CLASSIFIED ADVERTISING

Rates: $30.00 per column inch or fraction thereof. If boxed, add $15.00.
Situation-Wanted ads—⅓ of these rates.

Copy: Figure 40 characters per line, 9 lines per inch. Include reply address.

Terms: Cash with order.

Our classified advertising section is intended for use by those wishing to buy or sell used packaging equipment, to employ packaging personnel, seek such employment, offer or seek business opportunities. It is not available for general advertising.

USED EQUIPMENT FOR SALE

One #4800 Pitney Bowes Carton Imprint Machine and #4880 Stacker. Purchased October, 1956, used very little. Cost $3,893.09. Will show in operation.
THE GENERAL CELLULOSE COMPANY, INC.
Garwood, New Jersey
SUnset 9-0010

POSITION AVAILABLE

MATERIALS ENGINEER

New position for engineer capable of creating new test procedures and devices for the purpose of evaluating a broad range of new packaging materials (plastics, metals, glass and paperboard).

Send resume including salary information in strict confidence to Walter Evans.

GILLETTE SAFETY RAZOR CO.

Gillette

Gillette Park • Boston 6, Mass.
(Two minutes from South Station)

Circle No. 288 on Card

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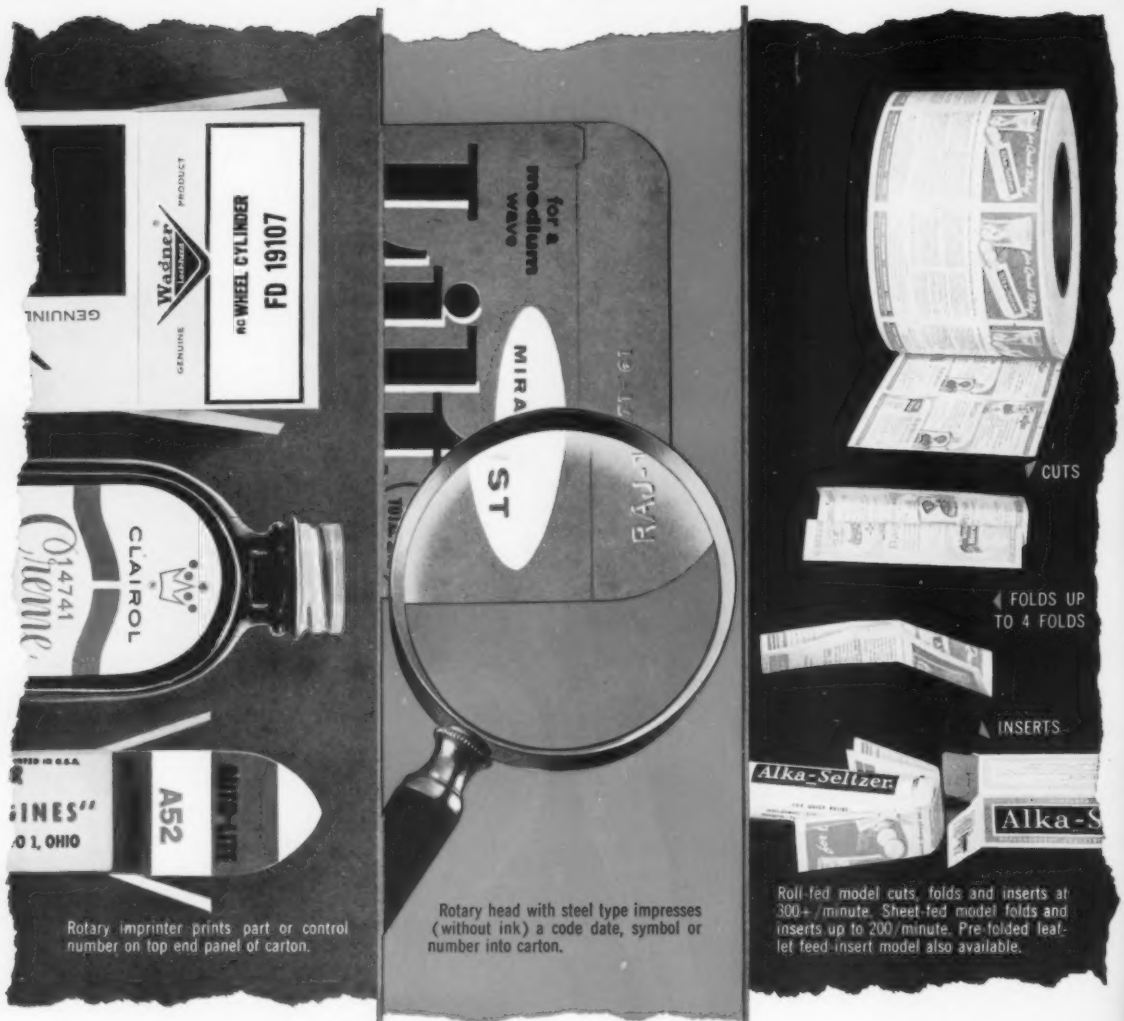

Rotary imprinter prints part or control number on top end panel of carton.

Rotary head with steel type impresses (without ink) a code date, symbol or number into carton.

Roll-fed model cuts, folds and inserts at 300+/minute. Sheet-fed model folds and inserts up to 200/minute. Pre-folded leaflet feed-insert model also available.

Imprinting | Code dating | LEAFLET Folding

Do all 3 automatically on Jones CMC and CMV cartoners

Save extra operations, handling and expense. Combine imprinting, code dating and leaflet folding with your regular cartoning operations. Do all this automatically with attachments built into your Jones cartoners as they are being assembled. Your attachments will be carefully synchronized to the speeds of your Jones cartoners, ranging from intermediate to 300-plus per minute.

The efficiency and legibility of the Jones imprinter (Clairol label above imprinted while on a flat surface bottle) gives manufacturers the additional economy of larger carton orders.

R. A. JONES & COMPANY, INC.
Cartoning Machines - Case Packers

For complete information on how Jones can help reduce the cost of operations related to cartoning, write us today. R. A. Jones & Co., Inc., P. O. Box 485, Cincinnati 1, Ohio.

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